THE ENGINEERING AND MINING JOURNAL AND COAL

Entered at the Post-Office of New York, N. Y., as Second-Class Mail Matter.

VOL. LIX. JUNE 22. No. 25.

RICHARD P. ROTHWELL, C. E. M. E. Editor.

ROSSITER W. RAYMOND Ph. D. M. E. Special Contributor

SOPHIA BRAEUNLICH, Business Manager.

THE SCIENTIFIC PUBLISHING CO., Publishers.

SUBSCRIPTIONS to THE ENGINEERING AND MINING JOURNAL are PAYABLE IN ADVANCE. Price: For the United States, Mexico and Canada, $5 per annum; $2.50 for six months; all other countries in the Postal Union, $7.

The address slip on the paper will show date of expiration of subscription. Subscribers wishing their address changed will please give the name of the old post-office as well as the new one.

NOTICE OF DISCONTINUANCE.—The JOURNAL is not discontinued at expiration and is sent to subscribers until an explicit order is received by us, and all payment of arrearages is made, as required by law. The courts invariably hold a subscriber responsible to the publisher for the subscription price of all papers received until the paper is paid for in full up to date and ordered discontinued. PAPERS RETURNED ARE NOT NOTICE OF DISCONTINUANCE.

ADVERTISING RATES furnished on application.

REMITTANCES should always be made by Bank Drafts, Post-Office Orders or Express Money Orders on New York, payable to THE SCIENTIFIC PUBLISHING CO.

THE SCIENTIFIC PUBLISHING COMPANY.

OFFICERS :

R. P. ROTHWELL, Pres. & Gen'l Mang.

SOPHIA BRAEUNLICH, SEC'Y & TREAS.

P. O. BOX 1833.

253 Broadway, New York.

Cable Address: "Rothwell, New York. Use McNeill's Code.

LONDON OFFICE: 20 Bucklersbury (Rooms 366 and 367), London E. C., England. Edward Walker, Manager.

CHICAGO OFFICE: Monadnock Building, Room 737.

DENVER OFFICE : Cooper Building, Room 301.

CONTENTS.

	Page.
Headquarters of the Mining Industry	577
Gold and Silver Production of the World	57
The Candelaria and Durango Mining Co	577
Charles L. Hartsfeld	577
The American Export Trade	578
New Publications	578
Books Received	578
Porphyry.....T. A. Rickard	578
Coal in Brunei, Borneo.....F. D. G. Durnford	579
Blast-Furnace Construction and Working in Upper Silesia	57
Electric Installation at Silverton, Colo	580
*Joseph Hall's Process for the Manufacture of Aluminum	581
The Cyanide Process in Victoria	582
An Improved Dry-Crusher	582
Recent Decisions Affecting the Mining Industry	582
* Cripple Creek Phonolite Dikes, Raven Hill.—III...Edward Skewes	583
Estimation of Cyanogen in Impure Solutions.....J. E. Clennell	584
* Early Blast Furnaces of Georgia; Bauxite and Manganese Mining	585
Patents Relating to Mining and Metallurgy.	586
Personal, Obituary, Societies, Technical Schools, Industrial	587
Notes: Adhesion of Cement to Brickwork, 579—Action of Sodium and Lead Chlorides on an Aluminum Alloy, 579—The Saniter Desulphurzing Process in Germany, 579—Manufacture of Projectiles, 580—Impurities in Commercial Aluminum, 580—International Postal Union, 580—A New Refractory Substance, 581—Coal and Coke Production of Alabama, 1894, 581—Method of Estimating Carbon in Steel, 581—The International Mining and Industrial Exposition, 582—Proposed Concessions for Working Algerian Phosphates, 583—Waterproofing Bricks and Sandstone, 586—Telegraphy by Induction, 586—Miners' Changing and Wash Houses in Germany, 586.	

* Illustrated.

MINING NEWS.	LATEST MINING NEWS..... 591	Liverpool 596	Baltimore..... 598
Alaska 588	MARKETS :	MINING STOCKS :	Coal Stocks..... 598
California..... 588	COAL:	New York.... 596	Ind. and Trust.. 598
Colorado... 588	New York.... 591	Boston..... 596	Colo. Springs . 5 8
Idaho..... 589	Buffalo..... 592	Colo. Springs. 596	Helena..... 598
Kentucky..... 589	Chicago..... 592	Salt Lake City 596	Shanghai..... 599
Michigan..... 589	Pittsburg..... 592	San Francisco. 597	Salt Lake City. 599
Minnesota..... 589	Shanghai. 592	London..... 597	London..... 599
Missouri..... 590	IRON :	Paris..... 597	Paris..... 5 9
Montana..... 590	New York.... 593	Dividends..... 597	Mexico..... 599
Nevada..... 590	Buffalo. 593	May Divid.,.. 597	Valparaiso ...., 599
New Mexico.... 590	Chicago..... 593	Assessments.. 597	Philadelphia.... 599
North Carolina. 590	Pittsburg..... 593		CURRENT PRICES:
Ohio. 590	Philadelphia.. 593	STOCK QUOTATIONS:	Chemicals 599
Oklahoma..... 591	METALS:	New York..... 598	Minerals..... 599
Pennsylvania.. 591	Gold & Silver 594	Boston..... 598	Rarer Metals... 599
South Dakota.. 591	Other Metals. 595	Duluth..... 598	
Utah..... 591	CHEMICALS AND	Aspen..... 598	MINING CO'S.... 900
Washington ... 591	MINERALS.	San Francisco.. 598	
Wyoming..... 591	New York.... 596	Pittsburg..... 598	ADVT. RATES 18
			ADVT. INDEX. 15

THE HEADQUARTERS OF THE MINING INDUSTRY.

Visitors find here files of a great number of papers from the mining districts of this and other countries, and books of reference which can be consulted for information on any question in which they may be interested. They can have their letters addressed in care of "The Engineering and Mining Journal," P. O. Box 1833, New York, and will find in the headquarters every convenience for correspondence.

THE GOLD AND SILVER PRODUCTION OF THE WORLD.

The table of the world's production of gold and silver will appear next week, it has been held over in order to check it up by certain foreign government reports received too late for insertion.

In our review of the iron trade we have noted the recent advance of 50 cents per ton on pig iron made by both Northern and Southern producers. In the latter iron this marks an advance of $1.75 per ton within the past two months, bringing the selling price to $8.25 for No. 1 Foundry and $7.25 for Gray Forge in Birmingham. While this is a highly encouraging feature in the iron trade, it does not seem sufficient to warrant the sudden advance and numerous transactions which have taken place in the stock of the Tennessee Coal, Iron and Railway Company. As we have before said, it is to be regretted that a company possessing such excellent properties cannot be conducted as a legitimate business and kept out of transactions which have in the past, at least, savored strongly of stock-jobbing. In April this stock sold for 15½ lowest and 23 highest. It is now quoted 39, and "the street" rumors are that someone on the inside is preparing to unload, as the company is sold far ahead and gets little present benefit from the advance in price of iron.

We understand efforts are again being made to list the stock of the Candelaria & Durango Mining Company of Mexico on the New York Exchange. We have received from what we consider reliable and well informed sources, a good deal of information concerning this company, which our correspondents do not hesitate to denounce as something akin to a swindle, and several of the parties who are connected with the company have well-known reputations which should cast a deep shadow over any scheme with which they may be connected. We are assured on good authority that the Candelaria & Durango Mining Company does not own, nor is it in possession of the Candelaria mine, which it claims. On the contrary, the mine is held and worked by parties who altogether repudiate any connection or interest with this company.

We trust our New York Exchange will insist on proof of good title and ownership in the Candelaria mine of San Dimas, Mexico, and will investigate carefully the characters of the officials of this company before giving the stock any standing here; proposing investors in it will also do well to keep their money until such satisfactory evidence is presented.

The readers of the "Engineering and Mining Journal" have become familiar during many years past with warnings in its pages against schemes promoted by one Charles L. Hartsfeld, a veteran humbug who has taken in confiding investors in many schemes.

The latest of these that we have noticed was the "Denverside Smelting and Refining Company," concerning which we published on September 15th last the following notice:

"In the St. Louis 'Republic' of September 2d there appears an article on the Denverside Smelting and Refining Company, naming Chas. L. Hartsfeld as president; Wm. S. Hodges, vice-president, and Leo J. Scherer, secretary and treasurer, and it adds that some of the wealthy citizens of East St. Louis induced Mr. Hartsfeld to form a stock company, which has been incorporated with $50,000 capital, the officers already named being duly elected.

"If these citizens were readers of the 'Engineering and Mining Journal' they would save money. The Hartsfeld mentioned has been exposed many times in these columns as a humbug who has left behind him in Newport, Ky.; Rome, Ga., in Chicago and in many other places an unbroken line of technical and financial failures.

"The St. Louis 'Republic' should not be ignorant of Hartsfeld's record, and should warn its readers against parting with their money in his bogus enterprises. Nearly any reputable metallurgist in this country can inform our contemporary as to his technical record, and hundreds of those proverbially easily parted from their money, and who have furnished the means to keep up these humbugs, can give their more or less instructive financial experiences with this man."

This Hartsfeld Company has since been widely advertised and "boomed" in the local papers, but we now hear from stockholders who say that "on account of the mismanagement of the company by its president, Chas. L. Hartsfeld, against whom an action has been taken," they desire to wind up the company. Now that their money is gone they want to follow the advice we gave them before they invested, and when they should have made investigations. They were fully warned and deserve little sympathy.

THE AMERICAN EXPORT TRADE

Last week we presented an interesting table compiled by the "Australasian Ironmonger," showing the result of German and American competition with British goods in New South Wales. We are enabled to present below, from the same source, a similar table showing the competition in Victoria.

	1885.	1890.	1891.	1892.	1893.
Agricultural, total	£15,866	£32,490	£27,543	£32,884	£22,592
Percentage from U. S. A	2.3	22.5	16.1	19.3	25.4
Iron, total	£853,271	£1,190,008	£1,021,85	£608,306	£394,318
Percentage from U. S. A	0.2	0.5	0.8	1.1	0.6
" " Germany	1.9	7.3	5.9	9.6	10.01
" " Belgium	5.7	2.7	3.1	5.3	3.2
Nails, total	£50,526	£16,553	£15.887	£13,880	£3.094
Percentage from U. S. A	7.3	11.2	8.2	8.04	12.5
" " Germany	9.001	24.4	19.3	31.3	29.6
" " Belgium	11.3	17.2	19.9	39 2	5.2
Steel, total	£35,918	£53,740	£35,446	£25,433	£16,863
Percentage from U. S. A		0.1	0.4		8.6
" " Ger. and Bel	9 4	1.1	7.5	4.6	9.07
Platedware, total	£29,455	£71,408	£72,695	£35,379	£24,582
Percentage from U. S. A	16.3	9.2	9.1	15.1	7.5
" " Ger. and Bel	1.03	0.9	2.4	2.9	1.07
Oils (China excluded), total	£246,786	£255,395	£256.442	£185,846	£157,871
Percentage from U. S. A	49.6	48.1	48 05	63.4	59.6
" " Ger. and Bel	6.06	2 6	2.01	0.8	2.1
Manufactures of metals, total	£140.116	£202.651	£180.282	£100.444	£56,080
Percentage from U. S. A	8 3	8.4	8.2	9.5	15.9
" Ger. and Bel	0.2	2.5	4.4	4.3	7.09
Machinery, total	£158,409	£313,598	£230,936	£139,599	£113,642
Percentage from U. S. A	5.9	29.6	13.09	15.2	3.6
" " Ger and Bel	3.2	3.1	2.1	2.5	1.8
Lamps and Lampware, total	£2,027	£13,352	£16 205	£13.359	£6.768
Percentage from U. S. A	2.9	18.6	26.7	32.6	34.9
" " Ger. and Bel	6.6	10.1	13.98	17.08	13.1
Indiarubber goods, total	£29,549	£71,389	£73,248	£56,333	£49,934
Percentage from U. S. A	2.04	1 6	0.5	1.6	0.5
" " Ger. and Bel	6.5	2.8	0.6	1.1	0.6
Hardware & Ironm'gery, total	£202,567	£148,506	£157,050	£116 213	£68,115
Percentage from U. S. A	9.7	11.7	11.8	15.1	16.7
" " Ger. and Bel	1.3	2.5	2.1	2.4	4.7
Glass and glassware, total	£124,703	£110,986	£86,354	£78,098	£36,248
Percentage from U. S. A	1.8	2.7	7.3	9 2	18.9
" " Germany	3.1	13.1	17.2	19.3	10.05
" " Belgium	12.08	17.6	6.9	17.1	7.9
Cutlery, total	£26,326	£45,257	£46,312	£28,571	£21.739
Percentage from U. S. A	0.02	1.1	0.5	1 0.7	0.8
" " Ger. and Bel	1.8	4.3	6.5	4.2	7.2
Cordage (including Galvanized Iron and Steel, total	£15,247	£46,153	£.2,568	£42,286	£29,812
Percentage from U. S. A	2.9	1.3	7.3	14.9	4.3
" " Ger. and Bel	84	1.07	0.7	3.5	0.7
Brassware, total	£26,638	£27,716	£3,549	£12,704	£6 364
Percentage from U. S. A	1.4	0.8	2 4	1.1	1.4
" Bel. and Ger	1.2	2.7	1.2	0.5	1 5
Arms, ammunition, and exp., total	£82.977	£94,320	£97,778	£102,052	£82,279
Percentage from U. S. A	0.6	2.5	0.9	3.7	2.04
" " Germany	11.5	19.7	5.2	5.3	4.1
" " Belgium	0.6	3.3	2.4	4,008	1.9

As stated before the figures of American imports do not by any means show all brought in for a large part was purchased through British merchants and entered in the custom house as British products. It is notable that American imports of agricultural implements, nails, steel manufactures of metals, lamps and glass, have increased largely, while in oil, machinery, cordage and wire rope and some other items there has been a heavy falling off.

It is apparent throughout the table that the percentage of German and American goods is steadily increasing, while those of British manufacture are declining. The most active competition against American goods here, as elsewhere, is by German and Belgian producers.

NEW PUBLICATIONS.

THE VENTILATION OF MINES. By J. T. Beard. John Wiley & Sons, New York, 170 pp. Illus. Price, $2.50.

Mr. Beard, as secretary of the Iowa State Board of Examiners for Mine Inspectors, has had an excellent opportunity to gather practical data on the subject of mine ventilation and added to this is his own knowledge secured through practical work. While this has been an advantage in that it has enabled him to write both practically and technically, he has not simplified the work as much as might be desired for the student just commencing to study the subject, and this he states is the object of the volume. For any one familiar with the general principles of mine ventilation the information given in the book will be found most useful.

The first chapter deals with conditions existing in mines; the second of force as applied to ventilation; next, the resistance of the mine, and following this, the work to be accomplished. He then gives the resultant factors of ventilation, velocity, quantity, etc. Fans and furnaces are discussed at considerable length, and following come chapters on splitting the air current, and "equivalent orifices."

The following chapter is devoted to a discussion of compressive vs. exhaustive ventilation. The last chapter is a short one on the care of the mine as assisting ventilation. In a lengthy appendix are given some tables and problems. The book is well-printed and attractively bound, but while the subject is one which is always of interest to the mine manager, there is nothing in the book which would make it supersede older text-books on the same subject, either for the advanced student or any one actively engaged in mining work.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Brick Pavements. By W. W. Wallace, Jr. Willoughby, O.; Clay Publishing Company. Pages, 61; illustrated. Price, 50 cents.

Portland Cement. A Monograph. By Charles D. Jameson, Iowa City, Ia.; Republican Printing Company. Pages, 192; illustrated.

PORPHYRY

Written for the Engineering and Mining Journal, by T. A. Rickard.

No word is more associated in the mind of the Western miner with the metallic wealth which lies hidden in the heart of the many-wrinkled hills. The prospector and the digger have appropriated it for their own and widened its usage in spite of the proper protest of the petrographer. The word itself is of Greek derivation and means purple. The rock to which the name was first applied came from certain quarries worked by the Romans at Djebel Dokhan in Egypt. This was the red antique porphyry, the "porfido rosso antico," of the Italians and had, according to Zirkel, a beautiful blood-red ground mass speckled with small snow white and rose red crystals of felspar. The felspar was plagioclase and was accompanied by needles of black hornblende and small crystals of specular iron. Throughout the rock there ran a network of minute veins of accessory quartz. The groundmass itself was homogeneous and contained no distinguishable crystals of quartz or felspar. Such a rock would be called to-day a "porphyrite." Pliny, indeed, speaks of the "porphyrites in Ægypto" and Agricola pointed out that in the mosque of St. Sophia at Constantinople the columns were made of this particular porphyry.

It may be interesting to recall the fact, related by Vandam in "An Englishman in Paris," that it was originally intended to build Napoleon's tomb from the ancient porphyry. Guizot got into trouble over the matter in the following way: Visconti, the architect of the Napoleonic monument being at that time erected at the Invalides, wanted the sarcophagus to be red porphyry. Guizot acquiesced. It was found, however, that the old Egyptian quarries were exhausted of such material. Inquiries were made in the Vosges, in the Pyrenees, and elsewhere, but without success, and the idea was about to be abandoned, when it was learned at the Ministry of the Interior that this variety of ornamental stone existed in a quarry on the banks of Lake Onega, in northwestern Russia. The quarry, however, belonged to the crown and could not be worked without the payment of a tax. On becoming acquainted with the purpose of the French engineers who had charge of the undertaking, the Czar Nicholas remitted this tax, about 6,000 francs. Although the French paid for the entire cost of the working and transportation of the stone, over 200,000 francs, yet the report was circulated that "Russia had made France a present of the tomb of Napoleon," much to the annoyance of Guizot and the other French ministers.

In designating rocks of this class the ancients restricted the term "porphyry" to the red variety, thereby recognizing the etymology of the word. Rocks of the same kind, if of other colors, were, according to Quenstadt, indiscriminately called "marmor" or marble. To the modern petrographer a porphyry is a rock of igneous origin, having a homogeneous groundmass enclosing distinct crystals, such as quartz, felspar, hornblende or some other mineral according to which it becomes a "quartz porphyry," a "felspar porphyry," etc. The groundmass may be microcrystalline or it may be glassy, and the rock accordingly may be, for instance, a "granite porphyry," on the one hand, or a "rhyolite porphyry" on the other. In short, the word porphyry describes the structure or habit of the rock rather than its mineral composition, and it would be better, therefore, if we spoke of a "porphyritic rhyolite" than of a "rhyolite porphyry." According to the Germans, the porphyries having a glassy groundmass belong to the newer eruptives, just as those having a micr. crystalline base are supposed to be of more ancient origin. This distinction is questioned by many distinguished petrographers in England and in the United States. The term "porphyrite" is confined by Rosenbusch and other continental authorities to the pre-Tertiary plagioclase hornblende group of porphyries, such as diorite porphyry. This distinction is not generally accepted, though the restriction to rocks of a certain geological age is questioned.

At the present time the nomenclature of eruptive rocks is in woeful confusion, owing to the attempt of some to recognize rocks of similar mineralogical composition, but of different ages, by different terms and the refusal of others to recognize aught but purely petrographic distinctions.

To the mind of the Western prospector the name "porphyry" has, however, a certain marked significance. To him it expresses an eruptive rock, whether occurring in sheets, in masses, or in dikes, which is distinguished from granite by its finer grain and less developed crystalline structure, and from limestone and other metamorphic rocks by its fracture. The "bird's-eye porphyry," of Leadville, which is a quartz felsite, is to many a type of the rocks of this kind. Ignorant as he is of scientific nomenclature, the average miner has clear ideas regarding the association of certain rocks with deposits of ore, and that association is often a serviceable guide in his work of exploration.

In California the term "greenstone" is used in a similar loose way, because the diabase and diorite of the main gold belt, in Calaveras, Amador and Nevada counties, is as closely associated with the occurrence of the yellow metal as the porphyry of Colorado is with the white one. Again, the Cornishman likes to see "elvan" (quartz felspar porphyry) near his tin lodes, and the Australian looks out for "lava" (basalt, dolerite and limburgite at various localities) in the vicinity of the gold reefs.

In Colorado the Tertiary porphyries are widely represented by andesites. Thus, for instance, the ore of the California vein in Gilpin County is closely associated with the occurrence of a dike of the quartz bearing variety of andesite, usually called "dacite," because of its prevalence in the ancient Roman province of Dacia, now Transylvania. This dike has a fairly uniform thickness of 17 ft., and traverses the granitoid gneiss of the region at a high angle. The California lode meets the dike at 500 ft. from surface, the latter forms the hanging wall down to 1,600 ft. where the lode crosses the dike, so that the latter becomes its footwall down to the bottom of the workings, at 2,190 ft. Similar dikes are plentiful in other mines in the same and adjoining districts.

The country of the Cripple Creek veins is largely an andesite breccia. This peculiar rock occurs also in extensive masses on the Hauraki or Thames goldfield in the North Island of New Zealand, but nowhere is it developed to such an extraordinary extent as in southwestern Colorado, where its irregular weathering is the cause of the picturesque ruggedness of the San Juan mountains.

COAL IN BRUNEI, BORNEO.

Written for the Engineering and Mining Journal by Fred D. G. Durnford.

The existence of coal in Brunei has been established for over half a century. Proceeding by water to the river town of Brunei (seat of the Sultan and ancient capital of Borneo), intelligent observers noticed outcrops of coal on the banks and Crawford mentions this fact

Northwards coal is first met with in the open low hilly country of the north of the island of Labuan, where petroleum is also found. Crossing the Brunei Bay to the southwest it again appears in a low range of hills lying across a tongue of land named Muara, which is on the mainland of Borneo. It is next found on the Brunei River as mentioned; then behind the town of Brunei, and thereafter at various points following the course of the Litubang River where the mountain ranges are covered with forests and culminate in the famous Mulu mountain.

Coal has only been opened at Labnan and Muara. At Muara all the underlying mountain limestone has disappeared and it is asserted that the coal obtained is a lignite of a different period to that of Labnan For this there is insufficient evidence, as the mountain limestone reappears on the Litubang River, showing that all the outcrops mentioned are parts of one and the same coal measure.

The strike of this system is approximately from N. E. to S. W. with a dip of nearly 70° to the west. It is continuous, with few faults, and contains, among others, three very regular seams from 9 ft. to 16 ft. thick which are separated by only a few yards in thickness of excellent white under clay, millstone and other grits, and in nearly its whole length is accessible and easily won.

In color the coal is a waxy black; rather friable and requires careful handling and screening. It soils the fingers; is about 20% lighter than best cardiff; is highly bituminous, and if left in a wet state liable to spontaneous combustion. This is specially true of coal won from the surface workings.

At Labnan, a company with large capital imported machinery, built dwellings for Manager; sank shafts to depths altogether unsuited to the class of labor; commenced a railway; erected Hoffman kilns, and after winning 10,000 tons of coal, became bankrupt.

Muara mines have an humble origin. When work ceased at Labnan one of the miners found coal on the mainland and obtained permission from the Sultan, and to commence operations he drove a heading into an elbow of the small hill range. This was started on the wrong side and only struck a lower and smaller seam at a point where it had been locally dislocated. This led to the abandonment of the venture.

William C. Cowie, a Scotch Engineer, who with two brothers and a small capital had been trading in Lulu, next took Muara in hand, and with the co-operation, as shipping partners, of some British North Borneo officials, made these mines a success. Two of the largest seams were worked and the mine paid handsomely. Mr. Cowie obtained for this valuable concessions from the Sultan.

At this time, 1889, Rajah Brooke who was working coal in his own territory Sarawak, purchased Muara. The property was then called Brooktown, and with new wharves it is now a thriving and convenient port of call for steamers.

When work was commenced by Mr. Cowie all plant and machinery were of the simplest and cheapest types. Rails of hard wood were laid down; wagons, buildings, coal-sheds, made with material found on the spot. Buffaloes were used for traction, and the greatest output of coal was under 1,000 tons per month.

Since the Rajah's occupancy this output has been more than doubled, a properly equipped shaft to work the three seams has been sunk; steel rails laid down in place of hardwood; wharves erected and a coaling steamer kept constantly employed.

The labor employed is principally Chinese, who are excellent miners when properly trained and working at a moderate depth, say 60 fathoms. On contract work they are indefatigable, and at 75c. per ton of coal cut and loaded into hutches can earn $60 per month, while the Malay or Kadyan is perfectly satisfied with a daily wage of from 25c. to 35c.

The Brunie coal fields, over which Rajah Brooke now holds a monopoly, when better developed will doubtless prove a serious rival to, and possibly cut out the English and Australian shipments of coal to Eastern ports. Whether it can ever compete in price with Japanese coal is doubtful, but for quality it is superior to the great mass of coal which comes to Hong Kong in shiploads, and can be delivered on board there at $4 per ton.

Adhesion of Cement to Brickwork.—A number of experiments on the adhesion of cement to brickwork, carried out by Messrs. L. J. Affelder and R. C. Brown, are described in a recent issue of "Engineering News." Both natural and Portland cements were experimented with, several brands of the latter being tried. Three varieties of brick were used in the experiments, viz., a hard red brick having a specific gravity of 2·136, and absorbing 4·56% of water; a soft red brick having a specific gravity of 1·981, and absorbing 8·81% of water; and a firebrick having a specific gravity of 2·000, and absorbing 5·17% of water. The cemented surfaces of the bricks were 2¼ in. square, and the joints were about ¼ in. thick. The results showed no definite relation between the adhesive and cohesive properties of the cements, but the general conclusion arrived at was that with Portland cement the adhesive power was at least one-fifth of the cohesion, when new, and that in time it would become fully equal to it.

Action of Sodium and Lead Chlorides on an Aluminum Alloy.—An experiment of M. le Chatelier, described in a recent communication to the Academie des Sciences, Paris, may have an important bearing on the use of aluminum in the industrial arts. Equal parts of aluminum and copper were fused together in a crucible. The resulting ingot was then placed for 24 hours in a solution of common salt and lead chloride, with a view to dissolving out the uncombined aluminum. No apparent change could, at the end of this time, be observed in the ingot. It was accordingly removed from the saline bath, washed and dried. At the end of 12 hours the whole mass was found to be reduced to the state of powder from the spontaneous oxidation of the alloy. A similar ingot, not immersed in the solution of sodium and lead chrorides, was unchanged at the end ef a month.

BLAST-FURNACE CONSTRUCTION AND WORKING IN UPPER SILESIA.

An interesting article by A. Gouvy in the "Bulletin de la Societe de l'Industrie Minerale" gives the following information concerning blast-furnace working and construction in Silesia.

The author says that the production of pig iron in the Upper Silesian coalfields, amounting to about 465,000 tons, is attended with considerable difficulties from the friable coke, and inferior local brown iron ores, which are mostly small and wet, besides containing zinc in such quantity as to require special arrangements for cleaning the waste gases from dust and zinc oxide before being used, especially where regenerative brick stoves are used. The newest developments are in the furnaces Nos. I. and IV. at Friedenshutte. These are 8,400 ft. capacity, 59 ft. high, 19¾ ft. in diameter at the boshes, 10 ft. in the hearth, and 14½ ft. at the throat, constructed on Buttgenbach's principle; the stack, a single shell of fire-brick, tapering in thickness from 32 in. at the bottom to 28 in. at the top, with a cast-iron base ring, carried by seven cast-iron standards, being placed within a framework formed of four tubular iron pillars 75 ft. high and 35 ft. apart, stiffened at intervals by horizontal girders, tie-rods and angle-brackets to carry the charging and gas-collecting apparatus, which are unusually large and heavy, but no part of their weight rests upon the brickwork. The gases throughout the district are almost invariably collected by the Langen apparatus, having a conical charging hopper stopped by a telescopic bell with a water seal on the central gas-pipe, the whole arrangement being outside the furnace, leaving the latter, when the bell is lifted, perfectly free, when it becomes necessary, to clear out the accretions of the zinc oxide at the throat. At Friedenshutte the gas-pipe, of 8½ feet inside diameter, rises to a height of 42 feet above the furnace top to give room for an inclined pipe leading to the vertical downcomer, as a horizontal one would be very speedily blocked up by the deposited dust. Between the collecting-tube and the main gas-conduit are interposed two groups of gas-tubes standing in a shallow tank forming a water-seal at the bottom of each tube. The first group includes the downcomer and two other circular tubes, each 65¾ ft. high and 8¼ ft. in diameter, and the second five more of rectangular section, 7½ by 10 ft., and 46 ft. high, made of sheet iron 4 mm. thick, stiffened externally with diagonal straps of iron angle-bar, and divided by an internal partition, extending nearly to the top, into two parts, giving a passage of 32 sq. ft. and 92 ft. long for the gas in each tube. The total length of gas-way in the combined apparatus is 660 ft., and the volume nearly 25,000 cu. ft., or three times that of the furnace to which it is attached.

The blast is furnished by a horizontal compound engine with two blowing cylinders 7 ft. 4½ in. in diameter, and 5 ft. 7-in. stroke, giving, at 25 revolutions per minute, 20,800 cu. ft. of air at 6 lbs. per sq. in. The weight of the engine, including the condenser, but without the fly-wheel wheel of 41 tons, is 200 tons.

In consequence of the improvements in the gas-cleaning arrangements fire-brick stoves, are now becoming general in Upper Silesia. These are mostly Lurmann's and other modifications of Cowper's system. At Friedenshutte three Cowper stoves, 66 ft. high and 23 ft. in diameter, with 48,400 sq. ft. of heating surface, supply blast at 1,450° Fahr. to two furnaces which together burn 240 tons of coke per day. These stoves are built on the plan of Mr. Martin Bœcker; the checker-work is carried on brick arches, instead of iron girders, and the rectangular gas-passages increase in size outwards, being 4 in. square at the circumference, and only 3 in. near the center. Six hundred and twenty tons of 3-in. rectangular brick and 130 tons of molded pieces are required for each stove. These are made of three different qualities, varying in price with their fire-resisting power from 21s. to 50s. a ton, the total cost of the filling being about £1,700 per stove. These stoves have been at work for 5½ years without stopping for repairs, or to clean out deposits in the passages—a result due to the careful cleaning of the gases.

The blast-furnace boilers are mostly of the water-tube kind, with a special system of safety firing which has been adopted since the disastrous explosion in July, 1887, when 22 boilers were destroyed at one time. In this the fire-grate is replaced by a fire-brick checker-work about 5½ ft. deep, which keeps at a red heat and insures the immediate ignition of the mixture of gas and air, even after a stoppage of seven or eight hours. It has also a further advantage of improving the evaporative power, which has been raised from 1·64 lbs. to 2·87 lbs. of water per square foot per hour.

The ores smelted are mostly derived from irregular deposits in dolomite, contain from 35 to 40% of iron, 20 to 25% of silica, 3 to 4% of manganese, 0·2 to 3·0% of lead, and 0·5 to 4·0% of zinc, when dried at 100 degs. C.; but as delivered the amount of water varies from 20% in summer to 30% in winter, with a corresponding diminution in the yield to 24%, so that an admixture of richer materials is necessary to render them fit for smelting. This is supplied in the form of calcined spathic ore from Austria and Hungary, magnetic from Sweden, and forge and mill cinders from the local ironworks. At Friedenshutte the charges are made in the following proportions: Selesian brown iron ores, 70%; forge and mill cinder, 25%; Hungarian spathic ore, 5%.

The flux is a ferruginous dolomite containing some zinc. The daily yield of each furnace is from 85 to 100 tons of basic pig with a coke consumption of 24 to 26 cwt. per ton. There is also present about 0·4% of lead, about 6 cwt. of that metal being recovered from each furnace in 24 hours. This filters through the joints of the hearth bricks and collects in two cross passages below the hearth bottom, which are heated by a fire or gas-flame, so that the melted lead can be ladled out.

The deposits in the gas-flues and dust collectors are collected and sold to the numerous zinc smelters in the neighborhood; the quantity produced seems to be about 2% of that of the pig iron smelted. At Gleiwitz about 279 tons of oxide and dust, containing 57 tons of metallic zinc, have been taken from a single furnace in a year. The richest material is that taken from the top of the blast-furnace, which contains up to 70% of zinc, the deposits in the gas conduits giving 50%, and those in the flues of the hot-blast stoves 39%.

The Saniter Desulphurizing Process in Germany.—The Saniter desulphurizing process has just been practically tested at the Krupp works at Essen. The pig treated came from Luxemburg, and contained from ·12 to ·40% of sulphur. It was first treated with chloride of calcium, after which a little rich Bilbao ore or ferro-manganese was added, when a steel containing only from ·028 to ·086%, or less than $\frac{1}{10}$%, was obtained.

ELECTRIC INSTALLATION AT SILVERTON, COLO.

The electric power plant recently installed by Mr. Edward G. Stoiber at his Silver Lake mines, near Silverton, Colo., is attracting much attention from mining men and others interested in electric transmission of power, as it is the first plant installed in the Rocky Mountain region on the comparatively new three-phase system, which has become a practical success within the past year or two, and has given an impetus to long-distance transmission of power.

Heretofore the direct current of moderate voltage (usually 500 to 800 volts) has been the only really practical method of transmitting power and utilizing it for the various purposes required in mining, the single-phase alternating system being adapted only to one kind of work and not entirely satisfactory for that.

The success of the direct current system has been demonstrated by numerous plants in Colorado and throughout the country. But a serious drawback to the extended use of this system for long-distance power transmission is that such transmission, at moderate cost, requires high voltage, or pressure, while the direct current is practically limited to about 800 to 1,000 volts.

The serious nature of this difficulty is easily appreciated when it is known that for transmitting a certain amount of power at a certain voltage or pressure, with a certain loss in line, the cost of copper wire increases as the square of the distance. For instance, if for transmitting 100 H. P. one mile at 500 volts, with 10% loss in line, the wire costs $2,000, it will cost for transmitting the same power two miles under the same conditions the square of two or four times $2,000, which equals $8,000. For five miles it will cost 25 times $2,000, or $50,000, and for 10 miles, 100 times $2,000, or $200,000, which would be $2,000 per horse power. It is very evident, therefore, that under such conditions the cost soon becomes prohibitory.

Fortunately, there is a compensating law that for a certain power, distance and loss in line, the cost of copper is inversely proportional to the square of the voltage. For instance, if it costs, as explained above, $200,000 for wire to transmit 100 H. P. 10 miles, with 10% loss in line at 500 volts, it will cost at double that voltage, or 1,000 volts, $\frac{1}{4}$ as much or $50,000, at 2,500 volts (five times the voltage) $\frac{1}{25}$ as much or $8.000, and at 5,000 volts (10 times the voltage) $\frac{1}{100}$ as much or $2,000. That is, the same power can be transmitted, with the same loss, 10 miles at 5,000 volts for the same total cost of wire that is required for one mile at 500 volts. In other words, if the voltage is increased in proportion to the distance, the cost of wire remains the same. The key to long distance transmission is therefore evidently high voltage.

But with direct current machinery very high voltage is impracticable. Consequently electricians turned to the alternating current dynamo, which on account of absence of commutator and other features can be made to successfully generate currents of much higher voltage (3,000 volts or more), which by means of "transformers" (which are peculiar to the alternating current) can be raised to 10,000 or 15,000 volts or even higher under favorable conditions.

The drawback to the use of this system for power transmission has been the lack of a motor that will run satisfactorily on the "single-phase" alternating current, which was the only alternating system in use until recently. The single-phase alternating motor would not start itself from rest, either with or without load, but must have some other motor to start it and get it up to the exact speed (in step or synchronism with the generator supplying the current) so that the alternating impulses will strike the coils at exactly the right intervals during the revolution. Then the current is thrown on and the load applied gradually and carefully by a friction clutch. If thrown on too suddenly, or if when running there is a sudden increase in the load from any cause, the motor is liable to slow up a little, "get out of step" and stop. The use of such a system is evidently limited to cases where the work is continuous and at a steady speed. It is more or less inconvenient even there, and is not suitable for miscellaneous power purposes, such as hoisting, tramming, blowing, pumping and similar work, where an auxiliary starting motor would be impracticable, and especially where frequent stops and starts and variations of speed are necessary. Because of these difficulties the use of the single-phase alternating system has been very limited.

This troublesome problem has been solved by the three-phase alternating system, which has been in operation at numerous places throughout the country for over a year. This system may be best described as a combination of three alternating currents out of step with each other. That is, the alternations occur at different instants, one-third of a "cycle" or complete alternation apart, so that when one current is at zero, or changing direction, the other two are not. The result is a steady torque or pull, somewhat similar to the direct current. The motor usually employed on this system is self-starting, with or without load, and capable of speed regulation.

The Silver Lake group of mines is situated about four miles southeast of Silverton, at an altitude of about 12,300 ft. The ore carries both gold and silver, is comparatively low grade and requires concentration. The mill, situated on the shores of the lake, near the mouth of the tunnel through which the mine is worked, has been heretofore run by steam, generated by coal costing at the mill $8.75 per ton, and representing a monthly expenditure of $800 to $1,000.

The water power for running the electric plant is taken from the Animas River, above Silverton, by a 3 × 4-ft. flume 9,750 ft. in length, carrying 1,175 cu. ft. of water per minute and giving a head of about 180 ft., which will develop on the water-wheel shafts about 340 HP.

The present plant, which was started in January, consists of a 4-ft. double-nozzle Pelton water-wheel, with special buckets, running a 120 K. W. (160 H. P.) General Electric Company's three-phase 2,500 volt generator, the output of which is transmitted a little over three miles to the mill and mine by three No. 1 B. & S. bare copper wires (one for each branch of the three-phase circuit), and supplies there a 100 H. P. three-phase induction motor, run direct from the primary circuit, and, through step-down transformers, a 15 H. P. induction motor, running a pump which raises water from the lake to the mill, a 1 H. P. induction motor, running a blower and lights for the mill, bunk-house, office and other buildings.

The line, which extends over very rough country, was put up with great care. At each insulator the wire is inclosed in a short piece of rubber tubing as an extra precaution against leakage. In addition to lightning arresters at each end of the line, another safeguard against lightning is provided by a barbed iron wire extending the entire distance on the top of the poles, and is grounded as thoroughly as possible every second pole. In fact, no precaution has been omitted that could contribute to the successful and steady operation of the plant.

The 100 H. P. motor is started by simply closing the switch and then short-circuiting the starting resistance in circuit with the armature as soon as the motor is approximately up to speed. It will start the entire mill with all the machinery on.

Mr. Stoiber has just contracted for a duplicate 120 K. W. (160 H. P.) generator, another 100 H. P. motor for running an air compressor, and a 75 H. P. motor for running a large hoist. These motors will be underground and will be supplied at 220 volts by step-down transformers. This gives a total generating capacity of 320 H. P., of which about three-fourths will be utilized at mill and mine. This power being over three times as much as has been used heretofore when running the mill by steam, it will effect a saving of at least $1,000 per month, or $12,000 per year as compared with the production of the same amount of power by steam.

The Manufacture of Projectiles.—In an interesting communication to the London "Times," apropos of the approaching meeting of the Institution of Naval Architects in Paris, a correspondent draws attention to the progress which has recently been made in the manufacture of armor-plates and guns, and hints that more attention might now be paid to the manufacture of projectiles. The improvement in the resisting power of armor which has been brought about during the last seven years is stated to be nearly 50%. At an earlier period, when wrought iron was in use, 22-in. armor could have been perforated by the modern 12-in. projectiles and 19-in. armor by 9·2 in. projectiles. To-day, in plates of average thicknesses (6 in. to 12 in.), the best projectiles require a diameter nearly equal to the thickness of the plates which they are required to perforate. Six-inch plates will resist perforation from a 6-in. projectile fired at 1,960 ft. velocity per second. A plate 10½ in. thick has resisted well a 9·2-in. projectile with 1,800 ft. velocity. This plate has already received five rounds of 6-in. projectiles with velocities of about 2,000 ft. per second. None of these latter made more than a splash upon the plate. The projectiles go to pieces against these new plates. But the newest guns, with modern powder, are quite capable of doubling theenergy of the projectile, and it is important to consider whether the projectiles hitherto produced would be capable of using up this energy. No doubt increased velocities may secure perforation, although the punch may go to pieces. It has been found, for example, that projectiles which, with 2,000 ft. velocity, did no serious damage to the plate, could be forced through the plate in pieces when the velocity was raised to 2,400 ft. per second. "May it not be," he asks, "that, as against the hardened plates, shots which will pulverize are less suitable for high velocities than shots made of a more ductile material, which will submit to a moderate flow of the steel during the instant that perforation is being effected?" It appears to be useless to double the energy upon a punch which goes to pieces with the energy already commonly employed. We need to be reminded that the modern increase in the size of ships of war is largely dependent upon this relative advantage of the armor over the gun. So long as armor is believed to be capable of resisting perforation attempts will be made to cover larger portions of the ships with it, and the larger the ship the more easy it is to cover her sides with armor impenetrable to the average gun. With armor in the ascendant ships will grow in size; with guns in the ascendant numbers of ships rather than large ships will come into favor. He again asks: "How is the projectile to be so improved as to be capable of using effectively, against armor, the larger energies which the gun can give?"

Impurities in Commercial Aluminum.—H. Moissan, in the "Bulletin Societe de Chimie, says: It is well known that commercial aluminum contains iron and silicon, but in addition to these impurities the author states that corbon and nitrogen are also present. A sample under examination gave the following numbers on analysis: Al = 98·02, Fe = 0·90, Si = 0·81, C = 0·08, and traces of nitrogen. The quantity of silicon can be considerably reduced by fusing the metal under an alkaline fluoride. In the example cited the amount was reduced from 0·81 to 0·57%. The presence of nitrogen gives rise to the formation of ammonia when a sample of the aluminum is boiled with 10 per cent. potash and the gas passed through Nessler's solution. By passing nitrogen through fused aluminum the gas is absorbed, forming aluminum nitride, and the physical constants (elasticity, breaking strain, and co-efficient of elongation) of the metal are thereby altered. The existence of this aluminum nitride has been mentioned by Mallet. Carbon is present in large quantity than nitrogen, and may be determined by dissolving the aluminum in potash, washing the residue with water, and burning it in a current of oxygen, weighing the carbon dioxide produced. The presence of carbon has a marked effect on the physical properties of aluminum. In the case of pure aluminum, the breaking strain per square milimeter was 11·1 kilos. with an elongation of 9%, whilst carburetted aluminum broke at 6·5 to 8·6 kilos., with an elongation of 3%. In conclusion, the author mention that commercial aluminum containing alumina is devoid of crystalline character. He also states that certain samples he has examined contain small crystals of carbon boride.

The International Postal Union.—Mr. Edmund Hohn, Director of the International Bureau, Universal Postal Union, arrived in Washington, June 16, from Berne, Switzerland, on the invitation of Postmaster-General Wilson, to make arrangements for the International Postal Congress, which will convene in Washington in 1897. One of the principal questions to be considered at the congress will be the adoption of an international postage stamp, which idea was originated by the American representatives at the Postal Congress at Vienna in 1891, but was defeated because of the opposition of Germany and several other European countries, who feared the difference in values of the currency of the countries would encourage speculation in these stamps.

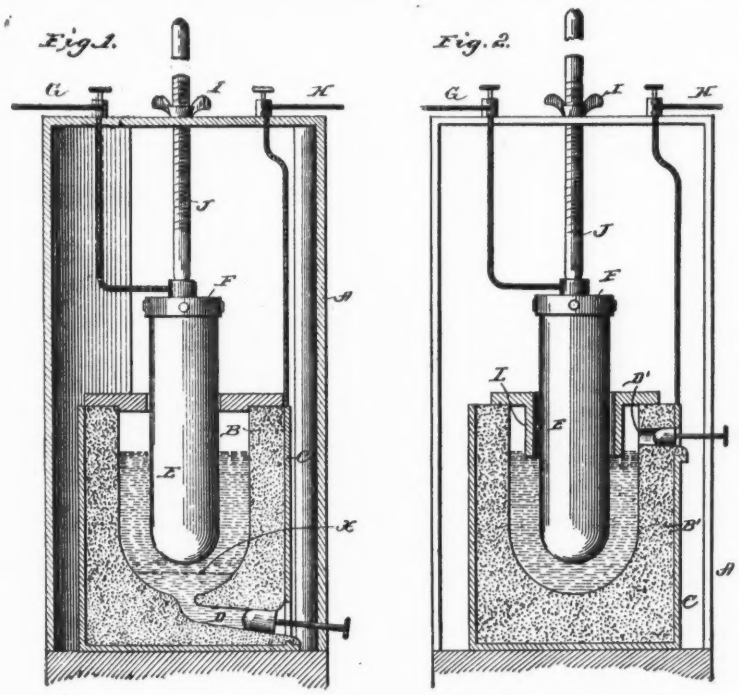
JOSEPH HALL'S PROCESS FOR THE MANUFACTURE OF ALUMINUM.

A new process has been patented by Joseph B. Hall, of Wheeling, W. Va., for the manufacture of aluminum. The method employed is to take aluminous earth, treat with sulphuric acid, forming a hydrated aluminum sulphate, which is decomposed by heat, yielding aluminum oxide, which in turn is reduced by electrolysis, the bath employed being formed by fusing together aluminum chloride, sodium chloride and lithium chloride, the aluminum oxide being supplied by the decomposition of an anode of which it forms a part.

The accompanying illustrations show the apparatus used. Fig. 1 is an elevation, partly in section, and Fig. 2 a view of the lower part of the apparatus slightly modified.

This process has been in operation for some time past, and, it is reported, has been quite successful, though thus far the company operating it has not made public the result obtained.

In Fig. 1, A is a suitable frame in which is mounted a vessel, or electrolytic cell; B, preferably composed of carbon or of carbon and alumina. For strength, the vessel is preferably inclosed in an iron envelope; C, both frame and envelope resting upon a suitable non-conducting base. The vessel is provided with an outlet, D, near the bottom, and above the vessel the frame bears a holder, F, from which a large anode, E, depends in the axis of the vessel. This anode is formed from carbon and aluminum oxide intimately mixed, and is adjusted in vertical position by suitable devices. The anode and the vessel, B, or its envolope, are connected with the positive and negative wires, and the vessel is filled to a proper height with a bath of the fused chlorides of aluminum, sodium and lithium. If the parts be properly adjusted the passage of the electric current decomposes the anode, and the alumina therein is released and diffused throughout the bath and then reduced, and the metal appears at



the negative electrode. At the same time the oxygen collects at the positive electrode, where it combines with the carbon, setting free more of the aluminum oxide. The reduced metal collects at the bottom of the vessel and may be drawn off. The whole operation is automatic if proper means be employed to regulate the position of the anode, and it is only necessary to renew the anode from time to time as it is consumed, and to restore in the bath such loss as may have arisen from volatilization, or from other causes. An insufficient quantity of alumina in the bath increases resistance, and carbonous oxide appears and burns at the anode, but if the quantity be sufficient the gas liberated is carbonic anhydride.

The inventor found it more satisfactory to diffuse finely divided alumina through the bath by making it a constituent of the anode—since the alumina seems to pass automatically to all parts of the bath and maintains a uniform resistance to the current, but has obtained tolerably satisfactory results when omitting the alumina from the anode, in which case the former was added and stirred into the bath mechanically, either continuously or at intervals. He claims that the chloride baths may be advantageously used to produce aluminum alloys if used with a fused negative electrode of the metal to be alloyed. For example, in forming aluminum bronze, a mass of copper is placed in the bottom of the vessel, as suggested at X, Fig. 1. Under the conditions existing when the aluminum oxide is reduced, the metal falling to the bottom of the vessel unites with the molten copper, The process as before is continuous, it being only necessary to remove the bronze and to keep up the supply of copper, in addition to the steps before mentioned.

An important part of the reduction of the metal is the flux or solvent bath used, which is the retult of experiments covering a period of three years. It is thought that the mode of preparing it has something to do with its efficiency.

The metal was reduced at various times, the duration of each test varying from 5 to 25 hours, using a current of 1,000 amperes, having from 1 to 4 pots in series, each pot requiring from 3 to 7 volts, the average being $4\frac{8}{10}$ volts. The metal in all cases was reduced from its oxide at the rate of $\frac{6}{10}$ (·6) of a pound per hour, requiring not more than 8,000 watt hours per pound. The process is a continuous one, and is operated 24 hours per day and 7 days per week. Over 300 lbs. of metal have been reduced, of which the last 60 lbs. analyzed 99·3%, 99·52% and 99·7%. The bulk of it has an average of 98·15% purity, some few pounds having impurities to the amount of 5% from the carbon anodes. In all tests the substance electrolysed was the dissolved oxide, the flux being lithium, sodium and aluminum chlorides in certain proportions. Carbon (used as anodes) was consumed in the exact chemical proportion corresponding to the formula, $2Al_2O_3 + 3C$—1 lb. of carbon to 3 lbs. of metal produced $2Al_2 + 3CO_2$. Patents have been applied for on the formation and design of the pots used.

The oxide used in the electrolysis has been procured by the sulphuric acid process from aluminous shale, slate, West Virginia clay, kaolin and bauxite. Also the hydrate of aluminum prepared by the Pennsylvania Salt Manufacturing Company from cryolite in the process of making soda.

The following provisional plan is given:

The building will be fireproof in construction, and, except where the coal bunkers and storage for alumina and bauxite are, will be but one story high. The bauxite will be removed by conveyor to a bin holding 10 or 20 tons, and from thence by conveyor to a continuous roasting furnace of the "Howell-White" or similar type. In this furnace the contained water is driven off and the iron oxidized into ferric oxide. From here it is conveyed to tanks, where it is acted on by sulphuric acid. In the course of five or ten days aluminum sulphate is formed in solution with but little free acid; then, if necessary, it is purified from iron, which at present is not required through having an excess of bauxite present. From the tanks the solution of sulphate, free from iron or silica, is pumped into a furnace which has a temperature of 500° C, and there the acid and water disassociate from the oxide and are condensed in air-chambers, from which they are pumped back to the tanks to be used over again. The oxide formed in the furnace is a white flocculent powder and is stored until used. When required it is dried in a furnace and by conveyor fed into the electrolytic pots.

The pots number 120, in series and have immersed in the contained flux carbon anodes. The metal reduced from the alumina is removed periodically and kept in a fluid state in separate furnaces, from which it is cast into ingots. The power plant will consist of two batteries of high pressure, water tube, mechanically stoked water-tube boilers of 800 H. P. each, furnishing steam for triple expansion, surface-condensing engine, H, which is directly connected to dynamos G G, one of which has an output of 1,000 amperes and 50 volts, used for electrolysis, and the other for light and power to run the conveyor, furnaces, etc. The switchboard in the same room will be completely appointed. The output of metal will be 1,440 lbs, of 99% metal per day of 24 hours.

A New Refractory Substance.—A correspondent of the London Colliery Guardian" says, under the name of Apyrite, Herren Schiffer and Kircher, of Grunstadt, in Rhenish Bavaria, work a mineral containing about 93% of silica, and consequently very refractory. When mixed with water, it forms a plastic and adhesive mass which, after dessication, becomes firm and resisting, while its volume does not change when exposed to the fire. Moreover, it is scarcely attacked by metals and scoria in fusion, which either do not stick to the surfaces made with it, or are easily removed without the least detriment to the furnace. In the neighborhood of the mines apyrite, tempered with water, is used instead of lime mortar, and also for plastering. Slightly damped, this substance is punned so as to supersede firebrick lining, as in the case of various furnaces, and a large foundry cupola can thus be lined in a day by two men, while such a lining lasts longer than one of the same substance made up into bricks. For repairs to the firebrick lining of furnaces, apyrite is also very useful, while its low price, and the fact that it is a good non-conductor of heat, recommend it in the case of blast furnaces, puddling and heating furnaces, foundry cupolas and crucible furnaces. The following is the composition of two qualities, the pure and the rich: SiO_2, 92·37 and 90·95, Al_2O_3, 5·1 and 9·45; Fe_2O_3, CaO, MgO, and K_2O together, 0·37 and 1·05, and H_2O, 1·73 and 2. Among other ironworks, apyrite is used at those of de Wendel at Hayange, Moyeuvre and Styring-Wendel in Lorraine, those at Esch-sur-l'Alzette in the Grand Duchy of Luxemburg, belonging to the Rothe Erde Company, and those of the Luxemburger Bergwerks of the Saarbrucken-Hutten-Actien-Gesellschaft at Burbach in Rhenish Prussia.

Coal and Coke Production of Alabama, 1894.—The following table, compiled from the returns in the office of State Mine Inspector James D. Hillhouse, shows the production of coal and coke, by counties, in the State of Alabama during the year 1894:

Counties.	Production of Coal in tons.	Production of Coke in tons.
Jefferson	2,776,303	874,071
Walker	871,770	13,780
Bibb	401,061	4,218
Shelby	76,619	.....
Tuscaloosa	190,981	29,899
Blount	8,000	.....
St. Clair	43,517	2,034
Winston	4,64	.....
Jackson	411	.....
Small mines in State	8,000	.....
Total	4,381,295	924 002

Method of Estimating Carbon in Steel.—M. Peipers, an engineer of Remschied, has suggested the following method of ascertaining roughly the percentage of carbon in steel: Two porcelain tablets are prepared, together with six steel pencils, having each a different but known percentage of carbon. In making a test a piece of the metal to be examined is drawn over one of the porcelain tablets, and the same thing is done with each of the steel pencils. The metallic marks then left are dissolved with a 12·5% solution of the double chloride of copper and ammonia, only the carbon remaining behind. A comparison then shows which of the pencils most nearly has the same composition as the metal tested.

THE CYANIDE PROCESS IN VICTORIA.

The Australian "Mining Standard" prints the following report which has been submitted to the government by Mr. Henry Buckley, after watching the process at the New Golden Mountain mine, Bonnie Doon, Victoria:

"The plant erected by the company consists of three leaching or ore vats 18 ft. in diameter, and 5 ft. deep, and 40 tons capacity. There are also two vats, 16 ft. diameter and 5 ft. deep, used as solution vats or sumps, a dissolving vat, two zinc or precipitating boxes. The plant, when a few alterations which are in contemplation are carried out, should be capable of treating 600 tons per month. In filling the vat the ore is trucked from the storage hopper by means of rails laid over top of vat, the trucks being emptied by tipping. The ore is discharged from the vats by using a hose and washing it through a manhole in the side of vat. The vat was fitted with a false bottom made of wooden lattice work, covered over with coir matting, over which wool packing was spread, the whole being securely fastened down by cleats of wood.

"The ore treated was obtained from No. 3 quarry. It was dry crushed in a pair of Cornish rolls. (Advantage was taken here of the opportunity to correct the slight acidity of the ore by adding to it lime at the rate of 6 lb. per ton while it was being crushed, and so it became intimately mixed.)

"It then goes into a hopper, and thence to a Faucett mill, the gratings of which were perforated with holes $\frac{5}{16}$ths of an in. in diameter. It was finally passed through a pair of Krom rolls into a storage hopper.

"The ore charge being placed and spread evenly in the vat, the cyanide solution was run on. In due time the solution was allowed to pass through the zinc in precipitating boxes, being drawn from the bottom of the vat underneath the filter. When the solution had disappeared under the ore, a washing of water was run on. This was allowed to percolate till all the cyanide solution was displaced. Another quantity of wash water of less volume was run on to displace the former, and so ensure the removal of all the cyanide. The vats 2 and 3 were treated in a similar manner to No. 1, with the exception of the volume of solutions used.

"At the completion of the treatment the zinc was removed and dissolved in sulphuric acid. This was done as a complete clean-up was wanted on this parcel. In ordinary working this would not occur, hence the quantity of zinc used was in excess of that required in full work. The residue left after treating the zinc was removed to a calico filter and washed with water, then dried and heated strongly with the object of oxidizing the base metals present. The resulting mass was then smelted in a plumbago pot with borax and sand, the slags being again treated to free them from adhering prills of gold.

"The cost of winning the ore could not be obtained with any degree of accuracy. But this, as well as delivery of the ore to the crushing mill, should not be more than 1s. per ton. The crushing, if plant was in full work, should be done for 1s. 3d. per ton.

"The average percentage of gold extracted by the cyanide was 82·3% of total contents. The manager, Mr. John W. Glover, states that when the false bottoms (now being pushed on in the other two ore vats) are finished, 800 tons per month will be treated. Four additional ore vats will complete the present plant, when the company will put through 2,000 tons per month. The cost of treatment per ton of ore is: Potassium cyanide, 4s. 7d.; zinc shavings, 2¼d.; lime, 3d.; cost of labor (filling and discharging vats), 5¼d.; total, 5s. 6d. 26 oz. 0 dwt. 5 gr. have been recovered from 85 tons of ore, or a little over 6 dwt. per ton."

AN IMPROVED DRY-CRUSHER.

The Australian "Mining Standard" gives the following account of a new dry-crushing machine invented by R. D. Langley, manager of the South Australian Portland Cement Company, Limited. The machine was at first intended only for cement rock, but upon a trial with quartz the results were exceptionally good.

The machine has one pair of large Chilean mill stones revolving on their axis in the upper pan, but not traveling round in the *pan* which revolves, and is partly supported on two pairs of chilled iron wheels which revolve rapidly in grooves in the lower pan. The weight of the upper mill stones or cast-iron rollers adds to the pressure on the iron wheels or rollers below, thus increasing their crushing power. The stone is first reduced nearly to the size of road metal by an ordinary stone-breaker, and is fed through a chute into the upper pan, where the rollers grind it to the size of large shot; it then falls into the lower pan, where the greater power of the double rollers reduces it to a fine powder. The rollers are worked by 4-ft. driving pulleys and a pinion, and heavy crown wheel from the top, giving motion to a vertical steel shaft of 6 in. diameter, the lower end of which runs on the heavy cast-iron foundation plate. The latter receives at each side a cast-iron guide standard, taking two steel girders under the crown wheel, and through them the main shaft works, thus completely bracing the whole together. The degree of pressure of the upper revolving pan on the lower rollers, is regulated by rods, by which it is slung to the head girder. The whole of the crushing machine is enclosed in a strong iron casing, which prevents the stone and dust from flying about. Scrapers arranged within the pans keep the coarser particles of stone from escaping at the sides, and force them under the rollers. One ton of hard quartz was pulverized, in 15 minutes, fine enough to pass through a sieve of 2,500 holes to the square inch. It is estimated that this machine requires 8 or 10 H. P., and can put through 25 tons of quartz in an ordinary working day.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Prepared for the Engineering and Mining Journal.

What Constitutes a Mining Lease.

The owners of land granted to another the right to enter it to test and search for minerals and oil, and to mine and quarry, the second party to have the right to erect buildings and machinery for work in mines, and to pay $25 per year if minerals were not mined, and to pay a royalty on all ore shipped. The instrument was termed, in itself, a lease, and was to continue for 99 years. The Supreme Court of Appeals of Virginia held that it was a lease and not a revocable license.

It is proper to give the lessee of a mine an extension of time in which to pay the rent, when it appears that he has frequently attempted to pay it, and the lessor has intentionally eluded him.—Young v. Ellis, 21 S. E. Rep., 480.

SUPREME COURT OF PENNSYLVANIA.

No Implied Warranty.

Where a party ordered a certain kind of tubing, which was delivered to him, it is no defense to an action brought for the collection of the purchase price, that it was not suitable for the purpose for which he wanted it, although the seller knew the use to which it was to be put.

The rule laid down by the English courts long since, and followed in this country, is that where a known, described, and definite article is ordered of a manufacturer, although it is stated to be required by the purchaser for a particular purpose, still if the known, described, and defined thing be actually supplied, there is no warranty that it shall answer the particular purpose intended by the buyer.—Jones v. Just, L. R. 3 Q. B., 197. Jarecki Mfg. Co. v. Kers, 30 Atl. Rep., 1019.

SUPREME COURT, IOWA.

Representations to Subscribers to Stock Company.

Statements made to party by one who procured his subscription to a fund for the erection of a factory, that the profits would be large, are matters of opinion only, and even if false do not constitute a defense to an action to enforce payment of the subscription.—Davis v. Campbell, 61 N. W. Rep., 1053.

COURT OF CHANCERY, NEW JERSEY.

Effect of Assignment of Patent.—Subsequent Improvements.

An assignment of an original patent, together with and "including any and all improvement for or about or in the same or pertaining to the art," carries with it all such subsequent inventions and patents as the assignor and patentee, in his application distinctly calls "improvements."—Stanton Mfg. Co. v. McFarland, 30 Atl. Rep., 1058.

UNITED STATES CIRCUIT COURT OF APPEALS.

Rights of Purchaser of Patterns of Patent Machinery.

Where one of the assets of a firm is a license to use, during the life of partnership, a patent belonging to one of the copartners, the purchaser of the firm assets at a judicial sale takes no right to use such patent, even though the tools and patterns used for making the patented articles are included in the sale.—Elgin Wind Power and Pump Company v. Nichols, 65 Fed. Rep., 215.

SUPREME COURT OF APPEALS, VIRGINIA.

Royalty Contract.

Where the terms of a contract were not clear whether royalties on ore were to be computed when the ore was wet or dry, the acceptance by the mine owner for seven years of settlements on a dry weight, with full knowledge of the facts, prevents him from asserting a different construction.—American Manganese Company v. Virginia Manganese Company, 21 S. E. Rep., 466.

Tunnel Mining Claims.

The Circuit Court of the United States holds that, from the time of the location and commencement of his tunnel, under Sec. 4 of the act of May 10th, 1872, the owner has the inchoate right to the possession of every blind vein or lode within 3,000 ft. from the face of such tunnel on the line thereof that was not known to exist when the tunnel was located and commenced, contingent only upon the diligent prosecution of the work on the tunnel and the subsequent discovery of such vein or lode. No discovery of such veins or lodes from the surface subsequent to the location and commencement of the tunnel can deprive the owner of the tunnel claim, who diligently prosecutes his work, of these rights. Upon his discovery such owner is entitled to the possession of such lode or vein to the same extent along the lode or vein as if discovered from the surface. It is the duty of the owner of a tunnel mining claim to present and litigate his adverse claim to any such blind vein or lode that has been discovered and is known to exist within the mining claim located from the surface, when the owners of the latter make application for their patent; and if in the absence of fraud or mistake he fails to do so, his rights as against such claimant will be lost. When, however, the blind lode or vein is not known to exist, and has not been discovered when application for patent has been made, and the claim of the locators lies parallel to the line of the tunnel, it is impossible to litigate the contingent inchoate right of the owner of the tunnel, and he will not be prevented from asserting his right, by his failure to present an adverse claim at the time of the application for patent, by the locators from the surface.—Enterprise Min. Co. v. Rico-Aspen Consol. Min. Co., 66 Fed. Rep., 200.

The International Mining and Industrial Exposition.—Montana, California and New Mexico promise to have notable exhibits at the exposition to be held in Denver, July 1, 1896. As this is the first actual mining exposition to be given with especial reference to the mineral interests of the country, it seems assured that each State and territory in the West will be appropriately and abundantly represented. In a recent editorial the San Francisco "Chronicle" urged the necessity of a California exhibit, saying: "California, if she knows her own interests, will be fully and adequately represented at the Denver exposition. Every person or corporation owning a mine and having it for sale, especially a gold mine, can well afford to put samples of the ore into the Denver exposition, for it will become, if made permanent, a mining exchange—not a stock exchange but a market for the sale of mining property. California certainly cannot afford to neglect the opportunity." Similar expressions come from the State of Montana, while a general interest is being shown throughout the West. There have been two great and notable mining exhibits of late years, the one at the World's Fair in Chicago and the other at the Mid-Winter Fair in San Francisco, but mining was minimized, to a certain degree, by the fact that it was not the head and front of the exposition. It was, in each case, only an incident, whereas at Denver the mining exhibit will be that around which all features center. The management announce that it is now certain that the exposition will be held and that ample financial aid has been secured to assure the success of the enterprise. One hundred and twenty acres of land adjoinining the principal park of the city were recently purchased as a site for the exposition, and architects are now engaged on the plans for the necessary buildings.

CRIPPLE CREEK PHONOLITE DIKES, RAVEN HILL.—III.

Written for the Engineering and Mining Journal by Edward Skewes.

The Raven Dike.—The course of the dike, as revealed by the float on the southeast slope of the Raven Hill, is northwest. The course of the dike, where it comes in contact with the Raven vein in the lower tunnel of the Raven mine at a depth of 280 ft., is also northwest. This vein as opened for over 2,000 ft. has a width of 4 ft., sometimes swelling to 10 and 12 ft., but rarely pinching below 4 ft. The course of the vein is N. 3° E., with a dip of 75° to the west, the walls being well defined. The surrounding rock is an andesitic breccia, which is the prevailing rock of the camp. The vein itself, apart from the quartz, is so soft as to be easily cut with a knife, and is free from grit. It easily slacks on exposure, necessitating timbering the back or roof, although containing but a very small percentage of lime.

The dike, judging from the rock at surface, is about 50 ft. wide. It comes in contact with the vein at a point about 400 ft. from the mouth of the lower tunnel, and follow the course of the vein north for 600 ft. It then leaves the vein, and takes its usual course northwest, and can be traced through a dozen claims beyond. I cannot understand why the dike should leave the vein at this particular point; perhaps future developments may show; the contour of the hill is the same. The vein becomes larger and softer after leaving the dike. When in contact with the latter it was very hard and of a dark, almost black color. The dikes of the camp as a rule have been of later origin than the veins, but this hill is an exception. The vein at the dike's point of exit cuts the dike, and maintains its true course. The 50-ft. dike was faulted 600 ft. by a 4-ft. vein.

ORE SORTING AT ELKTON MINE.

For fully 30 ft. before the dike was encountered, when driving on the vein, its influence was most marked: the vein, instead of showing a dip to the west, straightened itself to nearly vertical, and where it was homogeneous in its character there plainly showed the percolation of ferruginous waters or vapors. The presence of these stains in the vein is hard to explain; the vein itself at this point is free from iron; the dike shows no evidence of crystallization, and is devoid of everything that can be classed as metallic. Possibly these stains may be due to atmospheric moisture, as at and near the point of contact the conditions may have been more favorable than elsewhere for the circulation of surface waters through the permeable mass.

Dolly Varden mine, situated near the base of the north slope of Raven Hill, affords unmistakable evidence of surface waters carrying gold and precipitating or rather depositing the precious metal in little troughs or hollow depressions in the rocks, while the liquid is evaporated.

The influence of the dike has been most beneficial. The vein in connection has always been productive, while away from the dike such is not always the case. A drift has been extended due north on the dike to the foot or east wall, where the richest portion of the vein was found in the upper tunnel, some 300 ft. above. Another object was to communicate with a winze and thus secure ventilation. A drift extended 50 ft. N. 33° W. shows that the vein had split about 800 ft. from the mouth of the tunnel, and that the western branch of the vein in connection with the dike carries value in the seams. From this west drift a soft seam 12 in. wide crosses the drift, having a course of N. 10° E. All such seams traverse from west to east, or from the country rock to the dike. Such seams are only valuable when found in connection with the dike and vein; the seams mineralizing the country rock and dike to the depth of 6 in. on each side.

The dike itself is more mineralized on each side than in the center, and certainly has a higher assay value at the lower than at the upper tunnel.

Moose Dike.—This dike, also on Raven Hill, is on the south slope, close to the eastern boundary, and is about 30 ft. wide. Its course is north and south with a dip varying from 81° to 86° to the east, or practically vertical. The vein, which varies from 4 to 12 ft. wide, is in the dike, and the closer it is to the footwall of the dike the richer it becomes. A gouge is part of the vein, and as the gouge pinches, the pay streak widens and increases in value, and vice versa. The rich part of the vein cannot be traced for 1,500 ft. without a break or fault; in fact, there are breaks every few feet, and the pay-streak is thrown from east to west and from west to east, without any apparent system. But there is a system, and future developments will unravel it. A specimen from this mine, the assay value of which is $700 (not by any means a picked specimen, as many cars have been shipped which yielded $500 per ton) is a rock which few would expect to carry much gold value. It has a hardness of 5·0 yet looks as if it would crumble to pieces. The rock is of a light gray color, with knife blade seams of oxides of iron and manganese running through it.

Kentucky Belle Dike.—The vein on this property has a course N. 7° E. The vein is 3 ft. wide and vertical. The phonolite dike has a course of east and west and cuts the vein at right angles. At the point of intersection the dike is 8 ft. wide, but carries only from $2 to $5. At present there is but one east and west dike in the camp from which shipments are made and that is in the granite. The Kentucky Belle dike metamorphosed the surrounding rock on its north side for 6 in. The fragments in the breccia were much larger, the luster of the small crystals of iron pyrites was more metallic and the hardness of the rock was greater. South of the dike the rock enclosing the vein was very much broken, and all the mud seams filling the fractures had a dip to the south of about 35°. Mud seams wherever found, when associated with broken quartz crystals, carry value in this camp. Mud seams without fractured transparent quartz, when vertical, rarely carry value, but when horizontal, with or without the silica, often carry value. The vein has been thrown three times in driving 300 ft. The faults have been from 2 to 3 ft., and to the east or down the hill when facing north.

I do not know that this dike has been found west of Kentucky Belle claim, but am inclined to believe that this is part of the dike found on Bull Hill across the gulch, where it has been proved to be nearly 100 ft. wide on the Draper claim and maintains that size for 450 feet, but on its westward course branches into fingers of different sizes.

Ida May Dike.—This dike was heaved 25 ft. to the west when facing north. The fault can be distinctly seen at the surface, as it was discovered by trenching.

Draper Dike.—This dike was first exposed on the southwest slope of Bull Hill. It crosses Arequa Gulch and has been found in several places on the southeast slope of Raven Hill. The strike is northwest and southeast, dip as far as determined is vertical. On Raven Hill two shafts have been sunk, and crosscuts extended demonstrate that at that particular spot the dike has a width of nearly 100 ft. For over 400 ft. surface workings show the dike to be 40 ft. wide. The rock surrounding or enclosing the dike is a soft fine-grained porphyry, varying from a white to a dull yellow color. This rock on the northeast side of the dike is 20 ft. wide, when another dike 4 ft. wide makes its appearance having precisely the same course as the larger one, and parallel to it for 300 ft. as far as explored.

On the northwest end of this dike the shafts and crosscuts revealed something entirely new in this camp. The Maggie Trimble claim in distinctively granite formation yielded a large deposit of carbonate of lead, assaying from 35 to 55% lead, from 5 to 15 oz. of silver and from $10 to $25 in gold. This dike on the Draper claim yielded large quantities of elongated boulders about the size of a man's head, which were extremely difficult to break, but when fractured would show perfect crystals of calcite. Apart from the boulders the ordinary dike rock (decomposed phonolite) showed the effects of serious disturbance. The fragments in the brecciated mass were reunited by seams of carbonate of lime. In the brecciated veins or deposits of the camp silica containing from 2 to 10 oz. of gold per ton is the usual cementing substance. The veins in the adjoining mines show as a rule less than 5% of lime.

Proposed Concessions for Working Algerian Phosphates.—The French Mining Council has under consideration the question of conceding the phosphates at Gafsa, in Tunis, a concession which would involve the necessity of making a railway to Djerial. A concession of the Sidi-Ayed phosphates would, in like manner, involve the making of a line from Fahs to Kef, in the Protectorate.

ESTIMATION OF CYANOGEN IN IMPURE SOLUTIONS.*

By J. E. Clennell.

The author, in his duties as chemist for the Rand Central Ore Reduction Company, in Johannesburg, has found that it is a common complaint among those who have to do with the extraction of gold by the cyanide process, that the amount of cyanide in a given solution cannot be accurately determined, owing to the presence of various impurities in suspension or solution. The indications by the ordinary method of titration with silver nitrate are both indefinite and erroneous. Various suggestions have been made for overcoming this difficulty. As the matter is one of considerable technical importance, we thought it worth while to make an examination of some of the proposed methods. Those which we shall describe are:

1. Preliminary treatment with lime.
2. Titration with iodine.
3. Precipitation of the impurities by alkaline sulphides.

Preliminary Treatment with Lime.—Solutions are frequently met with containing exceedingly fine matter in suspension, which cannot be rendered clear even by repeated filtration. Such solutions are frequently treated by agitation with caustic lime, which causes a deposition of the suspended matter in a flocculent condition, in which state it can be readily removed by filtration. This method was found to yield accurate results only when the solution contained no soluble double cyanides. It may be employed with advantage when the liquid is turbid from the presence of finely divided inert substance in suspension. Some double cyanides, such as that of zinc and potassium, are partially decomposed with precipitation of hydrate, $K_2ZnCy_4 + Ca(OH)_2 = Zn(OH)_2 + {}_2KCy + CaCy_2$, but the reaction is never complete. The indications obtained after such treatment are valueless, because, although the addition of caustic alkalies sets free some of the combined cyanide, and so raises the apparent strength of the solution, it does not enable us to determine the total amount of cyanogen. In solutions containing zinc the end-point is always preceded by the appearance of the characteristic flocculent precipitate of zinc cyanide ($ZnCy_2$).

Two solutions from the "zinc boxes" were tested, with the following results: The silver nitrate solution was of such a strength that 1 c. c. = 0·1 grm. KCy.

No. 1, first turbidity with $AgNO_3$, 25 c. c. taken for test; without lime, 0·9 c. c.; indicated strength, 0·036%; with lime, 1·05 c. c., indicated strength, 0·042%.

No. 2, 20 c. c. taken for each test.

	$AgNO_3$ required for first turbidity.	Indicated strength.
Without lime	0·1 c. c.	0·02%
With 0·1 grm. lime	1·5 "	0·075%
" 1·5 "	2·0 "	0·1%
" 1·0 "	2·0 "	0·1%

Titration with Iodine.—Turbid solutions, if free from zinc, may in many cases be accurately titrated, without filtering, by the method of Fordos and Gelis. A solution of iodine in iodide of potassium is standardized against a solution of pure potassium cyanide, the strength of which has been accurately determined by the silver nitrate method. The end-point of the iodine reaction is marked by the appearance of a permanent yellow tint, or, if starch has been added, of a bluish-violet color, and is in general sharp and delicate. It is essential, however, that the solution shall contain no free caustic alkali or alkaline monocarbonate, as these bodies react with iodine, rendering the indications too high and also indefinite.

The following simple method was found to give accurate results:

Siver nitrate is first added to a measured volume of the solution to be tested until a permanent turbidity, or, if the solution was originally turbid, a distinct increase of turbidity, is observed. Addition of a few drops in excess is of no consequence. A drop of phenolphthalein indicator is now added to the same liquid, and the titration is continued with N/10 hydrochloric acid, until the pink color disappears. Another measured portion of the original solution is then taken, and a trifle less than the quantity of hydrochloric acid shown to be necessary by the previous experiment for neutralization of the alkali is added, drop by drop, with agitation. The solution is now ready for titration with iodine.

This process depends upon the following considerations: 1. In a mixture containing alkaline cyanides, hydrates, and monocarbonates, the hydrates are converted into neutral salts, and the monocarbonates into bicarbonates, by the addition of a dilute mineral acid, before any of the cyanides are decomposed. 2. Bicarbonates of the alkali-metals are without action upon iodine. 3. When the cyanide in such a mixture has been converted into a double silver salt, the titration with dilute hydrochloric acid, with phenolphthalein as indicator, indicates the quantity required to neutralize the hydrates and convert the carbonates into bicarbonates.

The following experiments illustrate the effect of caustic alkalies on the indications by the iodine method of titration:

FOURTH LEVEL, ELKTON MINE.

BREAST OF TUNNEL, ELKTON MINE.

No.	Vol. 0·05 p. c. KCy.	Vol. N/10 KOH added.	Vol. Iodine required.	Indicated strength of KCy.	(1 c. c. iodine = 0·0035 grs. KCy.)
1	10 c. c.	.....	1·4 c. c	0·049%	End point quite definite.
2	10. c c.	5 c. c.	1·6 c. c.	0·056%	End point indefinite.
3	10. c. c.	10 c. c.	1·9 c. c.	0·066%	End point indefinite.
4	10. c. c.	15 c. c.	(?)	(?)	Faint yellowish tint beginning about 1·6 c.c. End of reaction quite impossible to determine.

The effect of neutralizing the alkali by the addition of hydrochloric acid is shown by the following experiments:

A. A mixture of pure cyanide and caustic potash was prepared.

a. 10 c. c. required 3·7 c. c. standard iodine, the end point being somewhat indefinite.

b. 10 c. c. required 1·15 c. c. standard silver nitrate. On adding phenolphthalein and titrating with N/10 hydrochloric acid 5·75 c. c. were required.

c. 10 c. c. were mixed gradually with 5·5 c. c. of N/10 hydrochloric acid and the mixture titrated with iodine. 3·3 c. c. were required, the end point being quite sharp.

d. 10 c. c. were mixed gradually with 5·5 c. c. of N/10 hydrochloric acid, and the mixture titrated with standard $AgNO_3$. 1·15 c. c. were required.

In these experiments—

1 c. c. standard $AgNO_3$ solution = 0·01 grm. KCy
1 " " iodine " = 0·0035 "

Hence the calculated percentage of cyanide in the four experiments above is as follows: a, 0·1295%; b, 0·1150%; c, 0.1155%; d, 0·1150%.

B.—An impure solution was titrated with the following results:

a. 10 c. c. titrated with $AgNO_3$ gave a faint indication of turbidity with 1·6 c. c., distinct turbidity with 1·9 c. c. (indicating 1·6%—0·19% KCy).

b. 10 c. c. titrated direct with iodine required 6 c. c. (indicating 0·21% KCy).

* Abstract of an article in "Chemical News."

c. 10 c. c. were taken and 2 c. c. $AgNO_3$ were added. This mixture was titrated with N/10 hydrochloric acid, using phenolphthalein indicator. 1·7 c. c. were required.

d. 10 c. c. were taken, and 1·5 c. c. N/10 hydrochloric acid added. This solution was then titrated with iodine, 5·95 c. c. being required (indicating 0·208% KCy).

C. A mixture of cyanide and carbonate gave the following results:

a. 25 c. c. required 1·1 c. c. $AgNO_3$ to give a permanent turbidity (indicating 0·044% KCy). On continuing the titration with N/10 hydrochloric acid 4·6 c. c. were required.

b. 25 c. c. were taken, and 4·5 c. c. N/10 hydrochloric acid added. This mixture required 1·1 c. c. $AgNO_3$ (indicating 0.044% KCy).

c. The same mixture required 3·65 c. c. iodine (1 c. c. iodine = 0·00323 grm. KCy). The indication, therefore, represents 0·047% KCy.

Solutions containing zinc did not give satisfactory results when titrated with iodine. In the first stage of the titration a faint yellowish tint appears in the solution, which is succeeded by a white flocculent precipitate. The first appearance of this precipitate was generally difficult to detect, but, in some instances at any rate, it appeared to correspond with the formation of a similar precipitate when silver nitrate is used, and therefore, probably indicates the completion of the reaction

$$KCy+I_2=KI+ICy,$$

and the commencement of the decomposition of the double cyanide according to the equation

$$K_2ZnCy_4+2I_2=2KI+2ICy+ZnCy_2.$$

After the formation of this precipitate the solution becomes colorless. On further addition of iodine, the amount of the flocculent precipitate continually increases until, at a certain stage, also very indefinite, the yellow color reappears.

Precipitation by Alkaline Sulphides.—The methods given in the various text-books for estimating cyanogen in double cyanides are, as a rule, tedious, and involve a number of separate operations, some of which occupy a considerable amount of time. The following method, while it is not applicable to every possible case, is fairly rapid, and serves to determine the "total cyanide" (i. e., the whole of the cyanogen, estimated as its equivalent of potassium cyanide) in solutions commonly met with, particularly such as contain zinc. It depends upon the following facts:

1. That many double cyanides, such as those of zinc, silver, mercury, etc., are decomposed by sulphuretted hydrogen or an alkaline sulphide, with precipitation of the metal as sulphide.

2. That the excess of sulphide may be removed without affecting the cyanides by the addition of insoluble compounds of lead, such as the oxides, carbonate, etc.

The method is as follows: A measured volume of the solution is made strongly alkaline by the addition of caustic potash or soda. Sulphuretted hydrogen is passed into the liquid until it ceases to give a precipitate, avoiding a large excess, or, which is better, a concentrated solution of pure sodium sulphide is added in slight excess. The solution is then well shaken and allowed to stand until the precipitate has subsided. A little lime may be added to assist the settling of the precipitate, in which case it can be filtered without difficulty. The clear filtrate is freed from excess of sulphide by agitating with litharge, which is best added in small quantities at a time, with constant agitation, until a drop of the liquid no longer gives the slightest black or brown coloration with a drop of lead acetate solution. A definite volume is then filtered off, and tested with silver nitrate in the ordinary manner.

Another method (which is not perfectly accurate, as the volumes occupied by the precipitated sulphides and the excess of lead carbonate are neglected) is as follows: It is accurate enough for most practical purposes. After precipitation with sulphuretted hydrogen or sodium sulphide, the liquid is made up to a definite volume, say 100 c. c., and, after settling, a measured volume of the clear liquid (say 50 c. c., or 25 c. c.) is taken, and added, with agitation, to a freshly-prepared mixture of lead acetate and sodium carbonate, in which an excess of sodium carbonate is present. Sufficient lead must be present (as carbonate) to convert the excess of sodium sulphide into lead sulphide and sodium carbonate. The liquid is again made up to a definite volume and allowed to stand. The precipitate settles very rapidly, and a definite volume of the supernatant liquid is decanted off; filtering if necessary. This may now be tested with silver nitrate.

The liquid to be tested must fulfill the following conditions:

1. It should give a perfectly white precipitate with a drop of lead acetate solution.

2. It should give no precipitate with sodium carbonate.

3. It should give no precipitate with sulphuretted hydrogen. A faint brown coloration is usually produced, probably owing to the solution of a small quantity of lead oxide or carbonate in the alkaline fluid.

In titrating with silver nitrate a slight granular precipitate was generally observed toward the finish. It was necessary to add the last few drops of silver nitrate slowly, with agitation. The end-point, however, was perfectly definite, the granular precipitate being disregarded. The point to be noted is the appearance of a distinct permanent turbidity pervading the whole liquid and not disappearing on standing.

The following experiments will illustrate the application of the method:

A mixture was made of 25 c.c. pure potassium cyanide (KCy = 0·924 p. c.); 2 c. c. pure zinc sulphate (1 c.c. = 0·01 grm. Zn); 10 c. c. normal caustic potash; 10 c. c. concentrated sodium carbonate. (Assuming that 1 part of zinc is capable of converting 4 parts of KCy into the double cyanide (K_2ZnCy_4), this solution should contain the equivalent of 0·08 grm. KCy as K_2ZnCy_4 and 0·151 grm. free KCy.)

This mixture was precipitated by sulphuretted hydrogen, and the precipitate filtered off and washed thoroughly. The filtrate was mixed with sufficient lead acetate solution to precipitate the excess of sulphide, and made up to 100 c. c.: 25 c. c. required 5·7 c. c. standard $AgNo_3$ indicating 0·912% KCy.

A mixture was made of 50 c. c. pure potassium cyanide; 10 c. c. pure zinc sulphate; 10 c. c. normal caustic potash; 10 c. c, concentrated sodium carbonate.

After passing in sulphuretted hydrogen, the liquid was made up to 100 c. c., and 25 c. c. of the clear filtrate were added to a mixture of lead acetate with excess of sodium carbonate. This was made up to 100 c. c. and filtered: 50 c. c. required 5·65 c. c. standard $AgNo_3$, indicating 0.904% KCy.

A mixture was made of 40 c. c. pure potassium cyanide; 5 c. c. pure zinc sulphate; 20 c. c. normal caustic soda. This was precipitated by sulphuretted hydrogen, diluted to 100 c. c., and agitated with a little caustic lime. 25 c. c. of the clear liquid were added to a mixture of lead acetate and potassium carbonate, in which the alkaline carbonate was in excess. The liquid was made up to 100 c. c. and filtered. This indicated 0.955% KCy.

A mixture was made of 40 c. c. pure potassium cyanide; 5 c. c. pure zinc sulphate; 20 c. c. normal caustic soda. This was precipitated with sulphuretted hydrogen, and the liquid diluted to 100 c. c. One grm. of caustic lime was added, and 50 c. c. of the clear liquid agitated with 25 grms. of litharge. The solution was then filtered. This indicated 0·93% KCy.

A mixture was made of 40 c. c. pure potassium cyanide; 5 c. c. pure zinc sulphate; 20 c. c. normal caustic soda. To this was added 5 c. c. of a concentrated solution of pure sodium sulphide, the liquid made up to 100 c. c., and settled with lime; 25 c. c. of the clear liquor were added to a mixture of lead acetate with excess of potassium carbonate. This was made up to 100 c. c. and filtered. This indicated 0.945% KCy.

Whenever the quantity of zinc was at all considerable it was found necessary (1) to remove the precipitated zinc sulphide by filtration before addition of lead salts. (Even thoroughly washed sulphide of zinc reacts upon carbonate of lead with formation of lead sulphide. (2) To add an insoluble compound of lead, and not a solution of lead acetate. The latter would be liable to precipitate cyanide of lead.

Before precipitating with sulphuretted hydrogen it is necessary to add a considerable quantity of alkaline hydrate, or low results will be obtained, owing to the liberation of hydrocyanic acid. When an alkaline monocarbonate was substituted for the hydrate the results were not satisfactory.

Application of the Method to Solutions from the Zinc-Boxes.—The solution tested had been used for 15 successive washes on the same charge of material, and had been passed each time through the zinc-boxes. It was therefore highly charged with zinc, as well as various impurities extracted from the ore. (a). Tested by direct titration with silver nitrate, 10 c. c. required 1·45 c. c. $AgNo_3$ to give the first sign of a permanent turbidity (indicating 0·145%), and 1·7 to 1·8 c. c. to give a perfectly distinct turbidity. The "free cyanide" may therefore be taken as about 0·17 to 0·18%. (b). The same solution was tested in a variety of ways for "total cyanide" by the method described above. The following mixtures were made:

Solution taken	40 c. c.	80 c. c.	40 c. c.
Normal caustic soda	20 c. c.	10 c. c.	10 c. c.
Precipitant used	H_2S	H_2S	Na_2S
Indicated strength in KCy	0·80%	0·77%	0·785%

Mean of all determinations, 0·789%.

In each case the excess of sulphide was removed by means of a mixture of lead acetate with excess of potassium carbonate.

EARLY BLAST FURNACES OF GEORGIA; BAUXITE AND MANGANESE MINING.

From Our Special Correspondent.

To Bartow County belongs the distinction of being the first in which the iron industry began in the state of Georgia. The illustration here-

"RIVER" FURNACE, BARTOW COUNTY, GA. ERECTED 1858.

with is a photograph of the second furnace (stone stack) built in the State, the date of its construction being 1858. The first furnace erected was that known as the "Altoona," near the village of that name, some distance southerly from Cartersville, the county seat of Bartow County. To-day this is merely a mass of ruins, but the subject of the illustration stands intact as presented in the picture. Its location is on the western bank of the Etowah River, about four miles northeasterly from Cartersville. Its history is interesting, for the reason that during the late civil war this furnace and adjacent forges and rolling mills were employed by the Confederate government for the manufacture of cannons. In consequence, at the close of the war, the entire property, consisting of some 17,000 acres of mineral land owned by Maj. Mark Cooper, was confiscated

by the Federal government. A few years since this same property was purchased by a Philadelphia sydicate, which organized the Etowah Iron Company, and under the management of General Granger erected a very complete plant for the washing, jigging and sizing of manganese ore, which occurs very abundantly in association with the brown iron ore (limonite). This company went into the hands of a receiver about four years since, and the entire plant has remained idle. There are also located in Bartow County two or three other stone-stack furnaces, which were erected some time subsequent to those referred to. One, known as the "Stamp Creek" furnace, located on the stream of that name, and in the ore district known as the "Wolf Pen," was actively operated in the seventies, but it is now abandoned and rapidly going to ruin.

The iron ores of Bartow County include both brown (liminite) and specular, the latter only being in quite limited quantity, confined to the Peachtree ore bank, near Wolfpen and to another bank on the east side of the Etowah River, on the property of the Etowah Land Company. The main deposits now being worked are near Rogers Station on the Western & Atlantic Railroad, and near Emerson on the same road. The first of these is the property of the Georgia Mining and Manufacturing Company, and is being worked at present under lease by Mr. S. Munford, of Cartersville. This property is locally known as the "Big Ore Bank," and is subdivided into three mines, called the Connor, the Big and the Specular. In the last named mine the ore has a tendency toward the specular, and carries a higher percentage of metallic iron than the other mines.

The Emerson mines, which are being worked on a lease by the Central Mining Company of Georgia, are also of considerable extent, but the average grade of the ore, owing to the percentage of silica carried by it, is not as satisfactory in the present workings as desired. It is impossible to form any estimate of the quantity of iron ore in Bartow County, because, except at the two points mentioned, no active work is being carried on. The old workings were left in such a condition when abandoned that they have caved in. At several points on the property of the Etowah Iron Company, as well as the Tallapoosa Ore Company, apparently large deposits of high-grade brown ore occur. There are many abandoned ore washes and lines of narrow-guage tram tracks at different points in the county, and a few years since ore mining held quite an important position. An increased demand and higher price will be necessary before these works will start again.

The chief work in the mineral industry to-day is that of mining bauxite, manganese and ocher. The latter is being manufactured from the crude state for paint at the works of the Peruvian Ocher Company at Emerson. The manganese ore is being mined on a limited scale by several lessees of various properties throughout the county, hauled to Cartersville, and probably three or four tons per day shipped to the Eastern markets in its washed state. No extensive or very systematic mining operations are being conducted at any one point. The miners usually work in small squads and pay a royalty of $1 per ton for quantity extracted. The bauxite mines in the northwestern portion of the county are controlled by the Georgia Bauxite Company, of which A. E. Hunt, of the Pittsburg Reduction Works, is one of the main stockholders.

Waterproofing Bricks and Sandstone.—At a recent meeting of the Australian Association for the Advancement of Science, Professor Liversidge read a paper on the "Waterproofing of Brick and Sandstone with Oils." Experiments were made with the view of ascertaining the length of time that brick and sandstone are rendered waterproof or protected by oil. The oils used were the three commonest and most readily obtainable for such purposes, viz., linseed oil, boiled linseed, and the crude mineral oil known as "blue oil," used for preserving timber. The weatherings were made upon a flat portion of the laboratory roof fairly exposed to the sun and weather. Good, sound, machine-made bricks were experimented on. The amount of oil and water taken up by the sandstone was very much less than that absorbed by the brick, although the area of the sandstone cubes was much greater than that exposed by the bricks. Equal amounts of raw and boiled oils were absorbed; the blue oil, however, was taken up in much greater quantity by both brick and sandstone, but by the end of 12 months the whole of the 13½ oz. of blue oil had apparently evaporated away and the brick had returned to its original weight. The bricks treated with raw and boiled oils remain unchanged. After the second oiling in November, 1890, and exposure for nearly four years and two months, they had practically retained all their oil, inasmuch as they had not lost weight, and were also nearly impervious to water. It was noticeable that the sandstone cubes treated with raw and boiled oils returned to their original weights, but do not appear to have lost the beneficial effects of the oils, being also practically waterproof.

Telegraphy by Induction.—Before a special meeting of the London Chamber of Commerce held recently, Mr. W. H. Preece, of the telegraph department of the Post Office, delivered an address on "Telegraphy by Induction." After remarking that he had adopted this title to distinguish the subject of his address from telegraphy by conduction, Mr. Preece said that telegraphy by induction meant signaling through space by electro-magnetic waves, the points between which communication was desired not being joined by any conductor. A somewhat analogous process was the use of the heliostat in India, by which signals flashed by the rays of the sun conveyed information from Chitral to the relieving army. In this latter case the instrument which received and translated the signals was the eye, but in the experiments which he was now discussing the receiving instrument was the telephone. In 1884 an operator in the Telephone Company's exchange room near that spot read some messages that were being sent to Bradford from the General Post Office through a wire in the department's iron pipe, buried underground in Gray's Inn Road, altnough the telephone wire ran along the housetops 80 ft. away. An exhaustive series of tests and experiments proved beyond all doubt that this was a case of pure induction. In 1885 induction experiments in the neighborhood of Newcastle traced the effects to a distance of 2,000 ft. Distinct speech was carried across a space of a quarter of a mile. Other experiments followed, but the final practical success which was now assured was obtained last March in connection with the repair of the cable connecting the island of Mull with the mainland, near Oban. It was difficult to forecast the future of this new telegraphy. They had signaled in one direction only, but he saw no reason why they should not duplicate and quadruplicate their messages. Each particular circuit had its own sympathetic frequency, and each telephone responded to one particular note better than to any other. They were seeking some convenient place within reach to establish the system permanently.

Miners' Changing and Wash Houses in Germany.—The following description is given in a German exchange of the accommodation provided for miners at a Saarbrucken colliery: All the buildings are situated close to the shaft, and are so arranged that the miners are only exposed to the outside air for a short time. There is a large waiting-room, which communicates on one side with the lamp-room and on the other with a refreshment bar, where coffee and bread can be obtained at moderate prices. Connected with this room is the changing and bath-room, 108 by 64 ft., and 16½ ft. high. The baths are cells fitted with a warm water douche, and the room contains in all 55 cells, each capable of holding two men. The walls of the cells are made of corrugated iron, and there is a wooden partition in front of the baths, shutting them off from the rest of the room. The room is also fitted with a few cold water douche baths. Between two rows of bath cells a railing is fixed to which ropes passing over pulleys near the ceiling are attached. There is a hook at one end of the rope on which the miner may hang his clothes and then pull them up to the top of the building. Each man has his own particular hook, which is numbered. It is found that the clothes dry more quickly when pulled up into the warm air near the ceiling. The water is warmed by steam to a temperature of 95 F., and if the temperature sinks below this the fact is notified by the ringing of an automatic electric bell. Each bath requires about 7 gals. of water. The time allowed for the use of a bath for two men is five minutes. The present arrangements allow 1,200 workmen to bathe themselves in one hour. Out of 2,340 workmen 865 used the bath-house regularly. The cost of the bath-house was £2,144, or £39 per bath or cell. Special mine wagons are used for men meeting with an accident. These wagons are fitted with springs and cushions, and are made so as to go into the cage. The following articles are kept in a house close to the shaft for use in case of an explosion: 1. One small machine ventilator on wheels and fitted with carrying bands; 2, 100 yards of zinc air pipes, with a few bends, hanging wire and cloth for plugging holes; 3, rolls of brattice cloth; 4, saws, picks, hammers and nails; 5, three small hand ventilators; 6, 100 yards of small pipe for the hand ventilators; 7, water-bottles and straps; 8, vinegar for filling the water-bottles; 9, note-books and pencils; 10, torch lamps for surface lighting; 11, small pipes, screws, tools, etc., for ventilating and pumping requirements; 12, a portable fire-engine with hose.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

TUESDAY, JUNE 11TH, 1895.

540,659. Jigging Machinery for Dressing Ores. Henry R. Hancock, Moonta Mines, South Australia. Consists of a vessel provided with one or more valved water-inlet ports, and a screen movable within the vessel, the movements of the screen being adapted to open and close the valves.

540,671. Apparatus for Refining Zinc Spelter. Thomas J. Jenes, Pulaski City, Va. The combination consists of retorts arranged at an inclination within the furnace and provided with normally closed rear ends and open front ends, the open front ends of the retorts being disposed in planes higher than their rear ends to provide for directing the non-volatilized matter away from the open front ends.

540,745. Dredging or Excavating Machine. George W. King, Marion, Ohio. The combination consists of boom, winding drums, guide sheaves, frame, and swinging chain or cable leading over the sheaves of the sheave-bearing frame and over the guide sheaves or pulleys, and connected with the winding-drums.

540,811. Hydrocarbon Burner. Moses F. Gale, Brooklyn, N. Y. Comprising a hollow body having a suitable oil inlet, a central core projecting through the body, the core having concentric chambers at one end and being provided with a bore leading from the body to the outer chamber, a bore leading from the inner chamber longitudinally through the core, and a bore intersecting the longitudinal bore, a screen and a perforated burner.

540,953. Ore Washer and Concentrator. Arthur L. Dana, Roswell, Colo., assignor to J. C. Freeman, Boston, Mass. Comprising a rectangular frame, an oscillating frame, leaf or bow springs, a receptacle, false bottoms for the receptacle, and a valve to close the trap between the ends of the inclined false bottom.

540,997. Gold-Mining Device. Amos Mendenhall, Unionport, Ind., assignor to the Mendenhall Gold Mining Company, Chicago, Ill. Consists of a boat having a well in its bow, and a centrifugal pump of capstans at the ends of the boat having notches at their lower ends and cables secured thereto.

540,998. Slate Dressing and Sizing Machine. Humphrey F. Morgan, Delta, Pa. The combination consists of a main frame, the bed frame moving vertically and having lateral lugs, guideways on the main frame in which the lugs operate gauges extending into the guideways.

541,041. Process and Apparatus for Making Concentrated Sulphuric Acid. Frederic J. Falding, Cleveland, O. The method consists in exposing denitrated chamber acid to the action of hot burner gases in an independent concentrating apparatus.

541,048. Mine Trap-Door. George J. Herth, Evansville, assignor to the Automatic Mine Door Company, Terre Haute, Ind. Consists of a pair of arms pivoted on the same side of the door at the side of and lying normally at right angles to the track, their ends connected together and in the path of passing cars, mechanism connecting the arms with the door whereby the arms are moved in one direction.

Great Britain.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING MAY 15TH, 1895.

11,724 of 1894. C. Hoepfner, Giessen, Germany. Treating zinc carbonate with hot concentrated calcium chloride under pressure and then electrolizing the zinc chloride to produce metallic zinc.

12,218 and 12,219 of 1894. H. Y. Castner, London. Preparing alkaline cyanides, by passing nitrogen over carbon mixed with an alkaline metal instead of alkaline hydrate or carbonate.

25,322 of 1894. A. Lencauchez, Paris, France. Process for refining iron.

2,386 of 1895. W. J. Hammond, New York, U. S. A., and J. Gordon, Rio de Janeiro, Brazil. Improvements in the mechanical panning concentrator described in U. S. Patent 450,013.

WEEK ENDING MAY 22D.

8,306 of 1894. C. Vautin, London. Producing metallic chromium manganese, etc., by heating their oxides or sulphides with powdered aluminum.

11,437 of 1894. C. Richards, London. Improvements in Miner's Safety Oil Lamps.

6,260 of 1895. R. McKellar, Fort William, Ontario, Canada. Improvements in rotating pulverisers.

PERSONAL.

Mr. Otto Mears and Mr. J. B. Franks, of Denver, Colo., have been visiting the gold mines of North Carolina.

John S. Kennedy, blast-furnace engineer, is engaged in investigating the subject of making coke in retort ovens with recovery of the by-products.

Mr. H. B. C. Nitze, Assistant State Geologist of North Carolina, and Mr. H. A. J. Wilkens, mining engineer, are examining the gold belt of that State.

Dr. A. Scheidel, the well-known consulting chemical and metallurgical engineer, of San Francisco, Cal., passed through the city this week on his way to London on professional business.

Benjamin M. Post, who supervised the construction of the 90-day gunboats, built for the government during the war by the Allaire Iron Works, of New York, died at Passaic, N. J., on June 19th, aged 58 years. He was considered one of the best marine engineers in the country.

Mr. A. L. Hopkins has been elected president of the New York, Susquehanna & Western Railroad to succeed Mr. Simon Borg, resigned. Mr. Hopkins is at present receiver of the Chicago and Northern Pacific Railroad. He was formerly connected with the Wabash and Missouri Pacific railroads.

OBITUARY.

David Henriues, an old-time member of the Pacific Stock Exchange of San Francisco, Cal., died in that city on June 8th.

J. Armstrong, manager of the Great Extended Hustler's Tribute Company, of Victoria, New South Wales, died suddenly on May 10th, aged 46 years.

C. F. Schmidt, president of the Colorado Mining Stock Exchange, died at Denver, Colo., on June 17th, a victim of consumption. He was born in Jefferson City, Mo., 30 years ago.

SOCIETIES AND TECHNICAL SCHOOLS.

Colorado Scientific Society.—The next meeting will be held the first Monday in July, at Florence and Cripple Creek, where the cyanide and chlorination mills will be examined.

The Western University.—The Western University at Pittsburg, is planning a $30,000 electrical building, with power and electrical equipment costing $70,600, a mechanical and engineering building to cost with its equipment $100,000 and shops 80 × 100 ft. to cost $80,000.

American Chemical Society.—At the last meeting of the society, June 14th, Mr. John Enequist read a paper on the management of chemical works, in which he pointed out the necessity for chemical knowledge in every part of the management, as a means of achieving success at home and possible supremacy abroad. The value of constant experimental and research work was particularly recommended, it being the chief agent that has raised the German chemical industry to its present standard.

Civil Engineers' Club of Cleveland, O.—The regular meeting of the club was held Tuesday evening, June 11th. Present, 32 members and visitors. A committee was appointed to draw up proper resolutions in regard to the death of Mr. A. M. Wellington. The club listened to a paper by Mr. Frank Aborn on "Some Facts Concerning Drawing for Engineers." The practical importance of this increasing and valuable means of communicating ideas and the simple method of acquiring skill by free-hand practice were illustrated in a clear, practical manner.

Engineers Club of Cincinnati.—At the April meeting Mr. G. Bouscaren read a paper on "A Pure Water Tupply for Cincinnati," in which he favored the purification of the Ohio River water for the purpose by the system of sand filtration. At the May meeting Mr. W. M. Venable read a paper on "Long Distance Transmission of Energy by Electricity." Three new members were elected. A permanent standing committee on ship canal from the Ohio River to the Lakes was appointed. Delegates to represent the club in the Central Board of Business Organizations of Cincinnati were appointed.

INDUSTRIAL NOTES.

The Glendon Iron Company, of Easton, Pa., will soon blow in a furnace.

A raise of 10% in wages has been announced by the Howard-Harrison Iron Company, of Bessemer, Ala.

The Cleveland Rolling Mill Company advanced wages 10% in all departments June 13. The advance was voluntary.

The Westinghouse Electric & Manufacturing Company has declared a quarterly dividend of 1¾% on the preferred stock, payable July 1st.

One of the Thomas Iron Company's furnaces at Alburtis, Lehigh County, Pa., is undergoing repairs and will be put in operation at an early date.

H. D. Morris & Company, San Francisco, report the sale of a 14×22 Rand compressor and drills to the Merced Gold Mining Company, at Coulterville Cal.

The Missouri Furnace Company, St. Louis, Mo., is completing extensive repairs, and will blow in one of its two stacks shortly, to make foundry and Bessemer pig iron.

Dispatches from Birmingham, Ala., state that No. 2 furnace, of the Sloss Iron and Steel Company's plant, will blow in as soon as a few needed repairs will have been made.

The Illinois Steel Company has given official notice that on July 1 a 10% increase will be made in the wages of employees of the Joliet works, except those working on a sliding scale.

The F. D. Cummer & Son Company, Cleveland, O., has sold one of its direct heat brick dryers to the Royal Brick Company, of Canton, O., which is one of the best equipped plants in the country.

The Carbon Iron and Steel Company's plant at Parryville, Pa., has resumed operations, after a shut-down of over a year. Improvements amounting to $100,000 have been made at the plant.

The Cohoes (N. Y.) Rolling Mill employees, whose wages were reduced a year ago, commenced work on June 17th on the former schedule. The puddlers received an advance of from $2.80 to $3 a ton.

The Dewees Wood Company, of McKeesport, expects to have a gas producer built to furnish gas for its open hearth mills. It has contracted for a 20-ton 1,000,000-ft. gas producer, to be followed by six more.

The rolling mills of John Wood & Brother, of Conshohocken, Pa., have given notice to their employees of the restoration of the former scale of wages, to take effect July 1st. This means an increase of 12%.

The Wheeler-Sterling Steel Company, at Demmler, Pa., has completed an order for the United States Government for 400 semi-armor piercing projectiles. The order kept the works busy for about five months.

The Harrisburg (Pa.) Foundry and Machine Works, Harrisburg, Pa., is manufacturing a type of engines and boilers which have met with the approval of steam users, as shown by their rapid introduction.

The Consolidated Steel and Wire Company, of Illinois, has absorbed the property of the Baackes Wire and Nail Company, of Cleveland, O. The latter is the largest concern in the country. The price was $500,000.

The machinery for the blast furnace to be erected at Ogden, Utah, by the Ogden Furnace and Manufacturing Company, is expected to arrive on the ground shortly, having been shipped from the East on June 10th.

The Birmingham Boiler Works Company, Birmingham, Ala., is making four 100-H. P. high-pressure boilers for the new electric light station in course of erection by the Birmingham Consolidated Electric Light Company.

It is reported that the Tennessee Coal, Iron and Railway Company will begin work of repairing their furnaces at Oxmoor, Ala., shortly. The work will be pushed rapidly, and as soon as completed the fires will be lighted.

Two thousand men received a 10% advance in wages on June 17th in the Eberhard Manufacturing Company and the National Malleable Casting Company, of Cleveland, O. In the first concern 1,100 men are benefited and in the latter 900.

It is stated that the Pittsburg Reduction Company has contracted with military contractors abroad to supply aluminum for torpedo boats, army canteens and other parts of soldiers' equipments for several of the European governments.

The management of the Pennsylvania Bolt and Nut Works Company, at Lebanon, Pa., has announced a 10% increase in wages in the puddling and rolling mill departments, to take effect July 1st. More than 800 employees will be affected.

P. J. Benbow, one of the receivers of the Otis Steel Co., Cleveland, says the works are busy, especially in the plate mill. A start has been made on double turn and 500 men are now employed. It is believed the reorganization will be perfected soon.

A press dispatch from Chester, Pa., June 17, says the contract for a new mill has been awarded by Galey & Lord, which will employ 350 hands. The new mill will be a counterpart of the Aberfoyle, and will be located at Fourth street and Morton avenue.

The Niagara Falls Hydraulic Power and Manufacturing Company, Niagara Falls, N. Y., has recently installed a rope drive which requires 2,550 ft. of Hunt "Stevedore" rope. This rope for transmission purposes is made by the C. W. Hunt Company, New York.

H. F. De Bardeleben has returned to Bessemer, Ala. While in the East it is reported that he closed a three-years' contract with a steel mill superintendent, who will soon arrive in Bessemer and take charge of the steel works planned by Mr. De Bardeleben's company.

The Girard Water Wheel Company, of San Francisco, is shipping to the Ontario Electric Company, of Ontario, Cal., two 100-H. P. American Girard water wheels with governors. The wheels are to drive one 65 K. W. R. R. generator, and one 60 K. W. alternator for lighting.

At Muncie, Ind., the Darnell Iron Works have resumed with 150 puddlers. The mill is now operated by the Florence Iron and Steel Company. The old White River Iron and Steel Company's plant, now owned by the Park Iron and Steel Company, of Cleveland, has also started.

Poulterer & Company, of Philadelphia, have purchased from the Elmira Iron and Steel Rolling Mill Company its two largest blast furnaces at Elmira, N. Y., and will probably remove part of the machinery to the South. They also recently purchased the Rohrerstown Mill, at Rohrerstown, Pa.

The Means & Russell Iron Company, on June 13th, sold to Henry Heywood, of Connecticut, 3,000 acres of timber land lying near Ashland, Ky., the consideration being $15,000 spot cash. This makes $60,000 worth of timber land in the same immediate vicinity the company has sold the past three months.

The Economy Water Tube Boiler Company, New York, has issued a neat illustrated catalogue describing and illustrating its boilers. Cuts are presented showing sectional views of the boiler, furnace and settings and also of various details. An interesting feature is the dead plate, which is grooved to prevent bucking.

The New York Belting and Packing Company, New York, has introduced a new line of vulcanized interlocking rubber tiling, which is in appearance similar to earthen tiling. It has, from its lightness, elastic nature and the sure foothold which it offers, been found a very satisfactory flooring for steamships, depots and other public places.

The Wage Committee of the American Flint Glass Workers' Union met the manufacturers at Pittsburg, Pa., on June 18th, and all scales for pressed ware factories, except the paste mold scale, were amicably arranged, there being few changes from last year's list. The scales will be referred to the convention of the workers for ratification.

The Alabama Rolling Mill Company's plant at Gate City, Birmingham, Ala., is keeping a large force of men busy day and night (except Sundays), and as fast as cars can be obtained the manufactured product is being shipped to market. Some time ago the storerooms were filled with sheet and bar iron, but this, too, has been shipped, and now only a small quantity remains.

It is stated that the two coke furnaces of the Woodstock Iron Company at Anniston will go in blast within the next 90 days. Some repairs are needed, work on which will begin at once, and as soon as they are made fires will be lighted and the two furnaces, which have been idle since 1893, will start. The Woodstock company has been recently reorganized, and the new company is said to be backed by ample capital.

The Midas Gold-Saving Machine Company, of San Francisco, report sales of "The Gold King Amalgamators" to the following: One each to Len Bettman, Spokane, Wash.; Bryan & Getchell, Boice City, Idaho; Charles D. Kellogg, Quincy, Cal.; seven to J. H. Mercer, Eureka, Cal.; two to a mine near Mazatlan, Mex., and two to San Francisco parties to work on the boat on the Sacramento River.

The Krough Manufacturing Company, of San Francisco, reports sale of pumping plants to parties in Fresno County, Sacramento County, Shasta County, Sierra County, Santa Clara County, San Luis Obispo County, Tulare County, Napa County, Monterey County, Marin County, San Diego County, Marysville, Modesto, Folsom, all in California. It has also shipped valves for pipe line to Mexico and pumping plants to Honolulu, Columbo, and Mazattan, Mexico.

A special meeting of the directors of the Decatur Land Company was held at Decatur, Ala., June 18, to elect a successor to President J. T. Rutter, who recently died in New York, and fill other vacancies which existed. J. D. Probst, of New York, was elected president; C. C. Harris, of Decatur, vice-president; W. T. Mullican, secretary, and John C. Eyster, attorney. The office of general business manager was abolished and the duties of that official devolved on the secretary. The company has sold to the town of New Decatur all the water pipes and hydrants in the town.

The trial of a suit brought by T. Preston Hix to recover $45,000 as commissions for the organization of the Edison Electric Light Company, of Philadelphia, was commenced in New York City, on June 19th, before Judge Bookstaver in the Court of Common Pleas. The plaintiff alleges that he entered into an agreement with the Edison Company on February 23d, 1886, to organize a company in Philadelphia with a capital stock of $1,000,000. For his services he says he was to receive 15% of the capital stock, and in the event of any increase being made in the capital stock he was to receive 5% additional.

Uehling, Steinbart & Co., who are manufacturing the Uehling-Steinbart pyrometer, have placed these instruments at the furnaces of the following companies: Lebanon Furnaces, Lebanon, Pa.; Schoenberger Steel Company, Pittsburg, Pa.; Stewart Iron Company, Limited, Sharon, Pa.; Spearman Iron Company, Sharpsville, Pa., and the Cleveland Rolling Mill Co., Cleveland, O. They expect to perfect

the instrument so as to measure the temperature of molten iron and steel, and also for other special uses. Arrangements are being made whereby the pyrometers will be manufactured in their own establishment, which is now being equipped for that purpose.

The Wage Committee of the Amalgamated Association and the sheet manufacturers met and adjourned at Pittsburg on June 19th. For the first time in several years the manufacturers refuse to take the general card rate on iron for the basis of the sheet mill scale. The workers' first clause in their scale, that its base be on iron selling at 1 1/10c. a pound, was combatted by the manufacturers. The latter finally submitted a compromise proposition, announcing it as their ultimatum. The workers asked for another day to consider the matter. The chances are that the scale will not be settled at the present meeting, and that further conference will be necessary.

The annual meeting of the Minnesota Iron Company was held at Duluth on June 10th, and the following-named officers were elected for the ensuing year: Chairman of the executive board, H. H. Porter, Chicago, president, D. H. Bacon, Tower, Minn.; vice-president, Henry Seibert, Brooklyn; treasurer and assistant secretary, A. J. Patterson, New York; secretary and assistant treasurer, C. P. Coffin, Chicago; directors, H. H. Porter, Marshall Field, R. H. Lee, J. C. Morse, of Chicago; Henry Seibert, Brooklyn; D. O. Mills, H. M. Flagler, H. R. Bishop, R. P. Flower, of New York; P. H. Kelley, St. Paul; Benjamin Brewster, Philadelphia, and D. K. Bacon, of Tower.

Upon the application of the trustees of the Perry Stove Company, of Albany, N. Y., one of the largest stove manufacturing firms in the United States, an application for a voluntary liquidation was filed in the Supreme Court, and Judge Fursman has appointed Gen. Selden E. Marvin as receiver, who has given bonds and taken possession of the affairs of the corporation. The receiver is authorized to continue the manufacturing business without interruption. The stockholders at their annual meeting decided that the condition and the prospects of the company made it undesirable to continue the business on its present basis. The company's property is valued at nearly three times the amount of its indebtedness.

The sale of the Bristol, Elizabethtown & North Carolina Railroad, bought by Attorney Wintersteen for the Pennsylvania Steel Company, was confirmed June 14th by Judge John P. Smith. The price, $138,000, was paid in full, and it is said that the check was drawn by the bankers of the Norfolk & Western Railroad. There are now 12 idle furnaces along the line of the Norfolk & Western, and they are anxious to secure ore in order to start them up again. Mr. Fink, of the Norfolk & Western, has been inspecting iron mines in Johnson County, Tenn., recently, and it is more than probable the extension of the Bristol, Elizabethtown & North Carolina will be the result of this. It is currently reported too that the Bristol furnace and the South Atlantic & Ohio road will soon be embraced in all this combination.

Judge Dobler signed an order June 18th in Baltimore, dismissing the receivership for the Maryland Steel Company. The receiver, Mr. Frederick W. Wood, president of the company, is ordered to make a full account to the court, and upon so doing to be discharged from all liabilities incurred in his position as receiver. The order is made to turn all property and cash now in the hands of the receiver, appointed by order of the court dated April 1st, 1893, to the Maryland Steel Company. It appears from the deposition of the receiver that all the property of the Pennsylvania Steel Company has been sold to the reorganization committee, and that the sale has been ratified and confirmed. The reorganization committee is the owner of all the stock of the Maryland Steel Company, and it is in course of settlement with all the creditors of the Maryland Steel Company, except those whose claims are under $1,000, who have been paid in cash in full. Such being the case the auditor sees no reason for the continuance of the receivership.

H. de Valliere, New York, agent for Grecian magnesia bricks, has issued a pamphlet containing instruction for the use of magnesia bricks, as compiled by Ph. Negris, mining engineer, formerly of the Ecole Polytechnique de France. An important point in the construction of magnesia arches, is to provide for the free expansion of the bricks, so as to enable them to resist the strain to which their expansion subjects them. The best means of providing for this, is to leave spaces in the arches transverse to the longitudinal direction of the generator at distances of from 1 to 2 yds., giving to these spaces such a width that there shall be about 1 in. of space for every 40 in. of the length of the generator. It will be necessary, also, to provide for expansion in a transverse direction, by means of powerful springs connected with the iron belt (or armature), as here cracks or spaces would be impracticable. It is indispensable to leave above the magnesia arch an air chamber, from 2 to 4 in. deep, with a second arch above it built of refractory bricks. This air chamber, owing to the presence of the spaces allowed for the purpose of expansion, remains at a very high temperature. The heated air chamber is an excellent thing for preserving the magnesia bricks and preventing them from being cracked. They are poor conductors of heat and should be heated as uniformly as possible.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

Alaska Treadwell Gold Mining Company.—The clean-up for May was as follows: Period since last return, 30 days; shipment of bullion, $71,439; ore milled, 22,226 tons; sulphurets treated, 342 tons. Of bullion there came from sulphurets, $25,290. The estimated gross expenses for the period were $23,413, leaving a net balance of $48,026 for the month. The average bullion yield was $3.21 per ton milled; the average expenses $1.05 per ton. The average yield from sulphurets was $73.95 per ton treated, or $1.14 per ton milled, taking the total amount.

CALIFORNIA.

Amador County.

Hector Gold Mining Company.—This company's property has been bonded to the Wildman Gold Mining Company for about $160,000. The water has been pumped out and prospecting work has been begun by the Wildman company. The bond has still about two and a half years to run. It will be remembered that some years ago the stock of the Hector Gold Mining Company was listed at the Consolidated Stock and Petroleum Exchange of New York. The capital stock was 300,000 shares, though only 60,000 shares were placed here through Messrs. Macfarlan & Jenkins, who, it was understood, acted for Mr. George William Ballou. The remaining 240,000 shares remained in the possession of the original incorporators. An assessment of 15c. per share was levied in January, 1889. The president was, and presumably is still, Mr. T. B. Valentine, of 517 Clay street, San Francisco.

(From Our Special Correspondent.)

Bellwether.—This mine, on the outskirts of Jackson, has been bonded by Chicago parties; the purchase price will be $110,000. Arrangements are being made to erect a large mill.

Butte County.

(From Our Special Correspondent.)

Mascot.—In developing this mine, 6 miles from Oreville, an 8 ft. ledge has been struck at a depth of 300 ft. The ore looks well and the 10 stamp mill on the ground will soon be started up.

Shakespeare.—Alvinza Hayward is moving 20 of the 30 stamps now on the Shakespeare mine at Forbestown to Nevada City to be erected on a mine there owned by himself and C. D. Lane.

Calaveras County.

(From Our Special Correspondent.)

Ophir.—The San Francisco and Oakland parties who bonded this mine have sunk a shaft 30 ft. on the ledge, which looks very promising.

Mono County.

Bodie Consolidated.—There was a meeting of some of the stockholders of this company at San Francisco, on June 12th, at the office of Attorney C. L. Patton, 319 Pine street. The meeting was for the purpose of taking action against the present management of the mine and also to endeavor to elect a board at the annual meeting on June 17th. The San Francisco "Chronicle" says that some of the speakers at the meeting did not hesitate to say that they believed they were being robbed by the present management. C. L. Patton was elected chairman of the meeting, and J. H. Tingman secretary. Mr. Travis said that in June, 1894, the Bodie Consolidated crushed 368 tons of ore, running from $31.38 to $55.52 per ton. The tailings went from $5.87 to $9.38 a ton. The total yield was $26,174.62 for the month. In September, 1894, the company crushed 452 tons, varying in value from $42.34 to $101.36. The tailings ran about $5.47 per ton. The total yield for the month was $73,173.31. In May, 1895, the company crushed 525 tons, running from $28.41 to $52.11 per ton. The gross yield for the month was $23,351.09. The stockholders at the meeting on the 12th claimed that the large value of the tailings in May, 1895, indicates that the ore crushed was really $150 ore, while the reports from the mine show that it went only from $28.41 to $52.11 per ton. They want to know what became of the balance.

The following preamble and resolution were unanimously adopted by the meeting:

Whereas, it is the sense of this meeting that one of two propositions is true, viz.: That the Bodie Consolidated is a rich ore-producing mine, or that the "inside" has falsely colored all their reports save and except the last for the purpose of unloading their stock on the public; and, whereas, we believe the first proposition to be true, from information received from correct and reliable sources; and, whereas, in the face of this the "inside" has contributed all in its power by shutting down the mill and reporting a small yield of the same, thereby lending its influence to create a panic and cause a stampede among stockholders for the purpose, as we believe, of repurchasing at a comparatively greatly reduced figure stock sold at a high figure; and, whereas, in opposition to all rules and the universal experience of miners, they have made the pulp assays and tailings run largely in excess of value of what ought to be the yield of the final clean-up; and, whereas, from the same character of ore taken from the same drifts and stopes the management of said mines cleaned up on the first run $73,173 from 452 tons, while from the last run, on the same character of ore taken from the same places, they have cleaned up, from 525 tons, but $23,351.

Resolved, That this meeting does hereby condemn the management of said mine and frankly appeal to all stockholders who desire fair play to join with it in changing the same and establishing an honest administration at the annual election to be held on the 17th inst.

Another resolution was adopted denouncing the practice among brokers of lending the stock of their customers to the "inside," to be voted against the interests of the owners of it.

There are 100,000 shares of stock in the company, of which amount 84,000 shares are in the hands of stockholders. At the meeting on June 12th there were present stockholders representing 32,000 shares. An executive committee was appointed, composed of the following members: W. E. Miles, S. G. de Greayer, Charles L. Patton, J. L. Ryan and J. H. Tingman. This committee was instructed to use every effort to get the stockholders together to oust the present board of directors and elect a new board.

Bodie Consolidated Mining Company.—The official letter from the superintendent of this mine for the week ending June 9th says: During the past week the west crosscut from south drift, 42 ft. below the 300 level, was extended 13 ft.; face in porphyry, with seams of quartz. East crosscut from Gildea vein, 30 ft. level, was extended 18 ft.; face in porphyry. South drift from west crosscut 300 ft. level, was extended 10 ft.; face in porphyry. East crosscut from north drift, 200 ft. level, was extended 11 ft., face in porphyry, with seams of quartz.

Riverside County.

(From Our Special Correspondent.)

Santa Rosa.—This mine, 5 miles west of Perris, was worked many years ago by the Mexicans to the water level and about 1,000 ft. along the vein. A large force of men are now employed and the mill is running night and day. The output is about $10,000 per month.

San Bernardino County.

(From our Special Correspondent.)

Center.—This mine, about 20 miles east of Bear Valley Reservoir, is equipped with a 10-stamp mill and hoisting machinery. The incline shaft, now down 200 ft., has developed a large body of promising ore.

Siskiyou County.

(From our Special Correspondent.)

Siskiyou Mining Company.—This company, which now owns 200 acres of mining property on Clear Creek and Klamath River, is building a ditch 11 miles long which, when completed, will supply sufficient water to work the mines the year round.

COLORADO.

Clear Creek County.

(From An Occasional Correspondent.)

Bald Eagle.—This property, at Idaho Springs, was recently reopened by Denver parties. It is a low grade proposition, but on account of reduction in treatment charges it is believed that it can now be worked at a profit. Development work is progressing in the adit level, and at the breast the streak is 3 ft. wide.

Crown Point.—This mine was flooded on June 1st, and the taking out of ore ceased for 10 days. This property has greatly increased its output during the year, and the shipments to the concentrating mills will average 25 tons a day.

Freeland.—This property, located near Idaho Springs, is being opened up by the Redonda Mining Company. Prior to the beginning of the work, and while the shaft and workings were filled with water, it was represented that there were immense bodies of ore in the lower levels, which had been left there by the old company. After the water had been taken out it was found that this information was incorrect, for the old workings were barren. New ground in the fourth level is showing ore running well in gold. It is an iron ore, carrying no lead, although at the time the mine was paying handsome dividends for the old company it was a lead proposition.

Newhouse Tunnel.—The breast of the tunnel has reached the outer edge of the Gilpin County gold belt. It was reported that a good-sized lode had been cut, but Mr. Newhouse tells me that this is a mistake. However, it is certain that no information regarding strikes made by this company will be given out, for if the minerals show good value the company will attempt to buy up the mines.

Shafter.—The development work in this property at Idaho Springs has been steadily carried on during the past year, besides supplying 15 stamps with ore continuously. The fourth level has just been finished and stoping will soon begin. The mineral is very streaky and it is almost impossible to separate the smelting from the milling ore.

El Paso County and Cripple Creek.

(From Our Special Correspondent.)

Abe Lincoln.—This property, on the west end of Globe Hill and within the limits of the town of Cripple Creek, is about to become a shipper. A shaft or open cut has been sunk 12 ft. The formation is much broken and the foot-wall is granite. The vein, as far as can be ascertained, is 6 ft. wide; the pay streak assays from 5 to 22 oz. in gold for a width of 6 in., about 12 in. from the granite. The rest of the vein carries value from $10 to $87. Ore bins are being erected and an effort will be made to work the vein as an open cut until it straightens itself. The claim was only located in April last, and is under lease to Mr. Mansfield.

Anchor.—The Maloney lease on the Anchor at the present time has a showing unequaled by any mine in the camp. The vein in the shaft is 3 ft. wide, the average value of which, as shown by assays, would seem preposterous to state. The shaft is 130 ft. deep.

Black Bell.—This mine, on Beacon Hill, has shown great improvement during the past week, the pay vein having faulted to the west, and when found was very rich with both tellurium and gold.

Christmas.—This mine, on Bull Hill, steadily improves. The shaft has been sunk 82 ft., but a station has been cut at the 75-ft. level and drifts commenced both north and south, and which are in mineral. The ore thus far shipped from the property samples from 3 to 4 oz.

Elkhorn.—This mine, on Raven Hill, employs 73 men. The north drift at the third level has been advanced 65 ft. The vein maintains its size, but the character has changed almost entirely. The south drift has been extended 60 ft. Both of these drifts are very wet, yielding fully 30 gals. of water per minute. The usual amount of shipping and milling ore is being raised.

Geneva.—This property, on Gold Hill, and owned by the Cripple Creek Consolidated Mining Company, is erecting a steam hoist. The shaft is 90 ft, which is quite a depth for a windlass. The royalties, 17½%, paid by the lessees, Messrs. Wright & Marshall, for the last 20 days of May, amounted to $1,447.

Gold Hill.—In last weeks notes reference was made to 7 steam hoists, erected on Gold Hill since last February, and all by lessees. The number is too conservative. With the present number at work, and those in course of erection, the figures should have been 12. This part of the camp improves and it is hard to keep pace with the many bona-fide strikes.

Gold King Mining Company.—The El Paso, owned by this company and situated in Poverty Gulch, is erecting a steam hoist of 60 H. P., and a boiler of 80 H. P. Hitherto all the workings have been confined to tunnels. This property shows up well, and shipments are steadily increasing.

Lucky Guss.—This property, on Bull Hill, is at present the scene of unusual activity. The depth of the shaft is 180-ft., and it is the intention at once to resume sinking to a depth of 300 ft. A rich ore shoot at the 180-ft. level south was recently encountered which assays from $400 to $2,000 per ton.

Raven Mining Company.—The Maid of Erin, on Raven Hill and owned by this company, is being worked on lease and at a depth of 10 ft. and is a shipper. A talc seam about 10 in. wide assays from 10 to 20 oz. The Raven properties are being actively developed, and will soon be in shape for systematic mining on a large scale. Six cars of ore were shipped this week.

Prince Albert.—This property, on Beacon Hill, employs 10 men. The mine is being worked under lease, on heavy royalties.

List of steam hoists on Gold hill:

Name of claim.	Name of lessees.	Depth of shaft.	Remarks.
Anchor.....	Pelton.....	60	In course of erection.
Do.....	Hight & Co ...	60	In course of erection.
Do.....	Maloney.....	130	In working order.
Do.....	Garstin	135	Still sinking order.
Do.....	Peachey	90	Still sinking.
Do.....	Joseph.....	75	Do.
Baby McKee.	John E. Smith	105	In course of erection.
New Moon....	Cobb	135	In course of erection.
Chance.....	McCloskey .	110	First hoist on the hill.
Do	Hight.	65	In course of erection.
Geneva	Wright & Marshall..	90	In course of erection.
Midget.....	Harnan & Peck (owners)	65	In course of erection.

The Midget is now owned by Messrs. Harnan & Peck, of the Portland Company, who bought a one-third interest, it is reported, for $25,000. It cost only some $350 three months ago.

The Bogart, after its meteoric flash of last March, is likely to again come to the front, and this time with permanency. Eleven thousand dollars were received from the smelters, not to mention the amount in transit, while the entire cost did not exceed $280, or gold was produced for 50c. an oz.

Lake County—Leadville.

(From Our Special Correspondent.)

Arena Mining Company.—This company is operating a group of claims in South Evans Gulch, including the Little Ellen, Izard and Gnome properties Operations are carried on through the Izard shaft now nearly 250 ft. deep, and drifts have been run in all directions. The ore body is opened up for a length of 200 ft., and is from 1 to 8 ft. wide. It nets about $25 a ton. It is the intention to sink the shaft deeper.

Big Four Mining Company.—This is a new corporation, and will work the Sunflake and Rocky lodes, on the South Evans slope, and Breece Hill. A new shaft will be sunk, and it is to be known as the Heney. Eastern capitalists are at the head of this concern.

Cleveland.—This property, in South Evans gulch, is developing into an important producer. The shaft is down over 200 ft., but a good body of ore has been encountered at the 100-ft. level, which runs well in gold, silver and lead.

Famous.—The new machinery is in place, and the shaft will be sunk a further depth of 300 ft.

Gold Belt Leasing and Mining Company.—This company, headed by A. B. Roeder, of Denver, has control of 93 acres of ground very excellently located on the gold belt. Three shafts are being sunk, and are on the Hugh, Marth and Herman claims. The Hugh shaft operations are the most important, and the shaft is now down nearly 200 ft., and a diamond drill will do some exploration work.

Olga.—This property resumed work under lessees this week. It lies across from the Maid and Henriett and is a good iron producer. Several drifts are opening up of new iron bodies that assay 8 to 10 oz. silver and 50% excess.

Smith-Moffat Group.—These mines are making an excellent record. The Wolftone has caught the great Maid ore chute, and big bodies of ore are disclosed. The output last month was: Wolftone, 2,500 tons sulphide; Denison, 1,200 tons carbonate; Maid of Erin, 200 tons sulphide, and 1,300 tons carbonate; Bon Air, 1,025 tons of carbonate.

Tenderfoot.—Lessees have just taken hold of this property, lying near the Winnie. In an early day some good workings were encountered at a depth of 150 ft., but it is the intention to sink a new shaft and then drift to the old workings.

La Plata County.

(From Our Special Correspondent.)

Columbus.—It is reported that the management intends sinking the shaft to a depth of 600 ft. to thoroughly prospect the ore body, and if it holds out as at present, the workings will be opened from the Ruby gulch by a tunnel. This plan involves a considerable work, as the tunnel will be about 4,000 ft. long and 1,000 ft. lower than present workings.

Durango Girl.—This mine is improving and very rich ore is taken out. Your correspondent was shown some from the new strike, and the rock runs high in gold.

Small Hopes.—While the last shipment did not give returns as expected, it was encouraging for the owners, showing an increase in value over the preceding one of over one ounce of gold per ton.

Pitkin County.

Argetum-Juniata.—According to the Aspen "Sun" an important strike has been made in this property. For some time past the company has been driving a level north from the incline, believing a large ore body lay in that direction. Last week the expected ore body was encountered, and is proving to be not only of good grade, but also of large size. Some 20 ft. of the ore chute has been cut, and the end is not yet. The strike consists of a 4-ft. vein that assays from 200 to 1,000 oz. At one point the ore has been taken out for a distance of 15 ft. above the level, and it looks just as good as at the point where it was first discovered. No work has been done on the ore body below the level.

IDAHO.

Elmore County.

Atlanta.—Important mining developments have been made at Atlanta. A company of Boise men have been opening up an extension of the Atlanta vein. They have opened a body of gold ore 50 ft. thick. The ore runs $12 to $15.

KENTUCKY.

Breathitt County.

R. M. Broas, of New York, arrived at Jackson June 17th, with a corps of engineers of the Ohio & Kentucky Railroad to make a preliminary survey of a route to the Caney canal coalfields, in Morgan County, 25 miles from Jackson. The proposed line will begin at Elkatawa, a station on the Lexington & Eastern Railway, three miles west of Jackson. It will cross the Kentucky river at the mouth of Frozen Creek, and follow that stream to its head, giving Breathitt County 12 miles of the road. If this route should be chosen it will add greatly to the development of Breathitt County. It will bring a railroad within 15 miles of Salverville, 10 miles west of Liberty and 6 miles of Hazel Green, and will open some of the finest coal and timber lands in this State.

MICHIGAN.

Copper.

Osceola Consolidated Mining Company.—This company has declared a dividend of $1 per share to stockholders of record June 26th. The dividend is payable July 25th. Books close on June 26th.

MINNESOTA.

Iron—Mesabi Range.

(From Our Special Correspondent.)

W. G. LaRue and T. Hogan, of Duluth, have good indications of high-grade ore on section 15, town 58-19, where they are exploring pits, on the option lately secured by Richard Giffin on section 9, 58-18, already bottomed in good bessemer ore. The indications are for a large body.

Biwabik Ore Company.—Two shovels are mining and ore is being handled rapidly. It is probable that the mine will do more in 1895 than in either of the two preceding years.

Hale.—New boilers are being put in. Shipping will begin about July 1st.

Mesabi Iron Company.—This company held its annual meeting this week and elected the old officers and directors. It is the original mining company of the Mesabi range.

Mountain Iron.—At this property only Bessemer ore is being shipped; some 1,500 to 2,000 tons are going out daily. The Consolidated Company is preparing to put men at work on the Lowmoor, which adjoins the Mountain Iron, and which was worked to small extent two years ago. It has a large body of ore.

St. Louis County.

(From Our Special Correspondent.)

Ashland (Wis.) ore shipments were greater to June 16th than ever before, even in the record breaking year 1892. They footed up to 580,000 tons for the season, and are now increasing at the rate of about 100,000 tons a week.

Judge Nelson, in the United States Court, has denied the objections to the master-in-chancery's report in the suit of J. G. Williams, of Chicago, vs. John McKinley et al. Unless the Court of Appeals reverses the judgment McKinley will have to pay Williams $160,000 on account of deals made on the Mesabi.

The Merritt vs. Rockefeller suit was decided in favor of the plaintiff, as stated in the "Engineering and Mining Journal," last week. In a few days suits will be filed at Cleveland, O., against Mr. Rockefeller by the other Merritt brothers, and by the estate of Cassius Merritt, which will aggregate almost exactly $4,000,000, and in which the basis of action is identical with that just tried. Lon Merritt will sue for the largest amount, about $1,000,000.

Ore shipments last week from the Duluth & Iron Range Railroad docks were greater than in the company's history, 59 vessels, carrying considerably over 100,000 tons, having cleared. It is not improbable that the month's shipments will be 350,000 tons. As the water at the Sault St. Marie canal deepens the vessels are able to take larger loads than early in the season. Car receipts at the docks from the mines on June 12th were 16,000 gross tons, the biggest day the Duluth & Iron Range Railroad has ever had. Seventy boats were billed at the docks on June 15th as on the way from lower lake ports. It looks as if the Minnesota Iron Company would break all records in ore this year.

A very unusual and peculiar case is now before a district judge at Duluth. It is James and Anna Crowley vs. the C. N. Nelson Lumber Company, the Chicago and Minnesota Ore Company and the Minnesota Iron Company, and is for the recovery of the property on which is the Auburn mine, in town 58-17. The mine is on land originally homesteaded by Crowley, and he was supposed to have deeded it to one Dan McIntosh for $500, who in turn deeded to the Nelson Company. During the Mesabi boom the Nelson Company leased this and other lands to A. E. Humphreys, of Duluth, he paying a $30,000 bonus for the 20-year lease and agreeing to pay 25c. a ton royalty. He did some development and showed up an ore body, on which he organized the Iron King Mining Company. The Minnesota Iron Company bought an assignment of his lease for about $425,000, some $275,000 of this representing the share of the Iron King. The Auburn Iron Company was then formed in the Minnesota Iron Company, and it changed the name of the mine and began very extensive developments. Last year 108,000 tons were shipped, and during last winter preparations were made for the mining this season of as much as 700,000 tons, if found desirable. The mine has been shipping at nearly that rate this spring. It has an enormous ore body and is one of the best properties on the Mesabi, both for the grade of its ore and the facilities of mining. Now comes the plaintiff in this action and says he never signed the deeds transferring to the Nelson Company. McIntosh said on the stand that he did not buy from the plaintiff or sell to the Nelson Company; indeed, that he was not in this part of the United States at the time the sales were made. The Nelson Company has deeds purporting to be originals. Crowley is a poor man living in Nova Scotia.

Rainy Lake District.

(From Our Special Correspondent.)

The stamp mill of the Lyle mine, on Dryweed Island, in Rainy Lake, has shut down and the owners are experimenting with wet processes. They say the mill will not treat their rock. As a matter of fact, the mill was run for some days, and there was scarcely a color on the plates. The hasty action of the owners in putting in a mill when they did has all along been condemned by mining men. The original locators of the property sold out shortly before the mill was in running order. The Lyle now claims to have struck free milling rock

deeper, but no mill tests are yet available. No other property in the entire region has been so boomed by the newspapers of Duluth as this.

The stamp mill of the Lucky Coon of Hillyer mine, on the Seine river, has closed down, no one knows why. The single brick sent from this mill, which was said to have been valued at $3,000, was really not worth anything like that sum.

The Little American mill is still running, and with some success. Considerable exploration work continues in the district.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

JOPLIN, MO., June 17.

The past week has seen a large production in this district. Although prices have remained nearly stationary for the past two weeks the demand for ore has been active. The starting of a number of furnaces at the various smelters has absorbed all the increased production and there is a fair prospect that the supply and demand will continue to increase equally for some time. The following are the sales reported:

Joplin, zinc, 1 609,050 lbs.; lead, 379,050 lbs.; value, $23,623. Webb City, zinc, 685,920 lbs.; lead, 34,930 lbs.; value, $7,200. Carterville, zinc, 1,472,750 lbs.; lead, 198,180 lbs.; value, $29,929. Spring City, zinc, 187,570 lbs.; lead, 9,350 lbs.; value, $2,182. Oronogo, lead, 9,420 lbs.; value, $145. Carthage, zinc, 52,300 lbs.; value, $590. Stotts City, zinc, 44,000 lbs; value, $440. Aurora, zinc, 756,000 lbs.; lead, 60,000 lbs.; value, $6,732 Galena, Kan., zinc, 1,910,000 lbs; lead, 731,910 lbs.; value, $29,208. Total output for the district, zinc, 7,720,390 lbs.; lead, 1,413,420 lbs.; value, $99,890.

MONTANA.

Deer Lodge County.

Montana Mining Company, Limited.—The preliminary statement says that the total output for May was 3,420 tons of ore which contained gold, 2,410 oz., and silver, 45,480 oz. The estimated realizable value of the same is $75,400. Expenditures were: Working expenses on revenue account, $33,800; outlay on developments, $10,700; extraneous expenses, including insurance, $2,500; machinery, including new pump for No 1 shaft, $14,300; total, $61,300. This leaves a net result of $14,000 for the month. The trial of the equity suit, referred to in the directors' report of March 4th last, resulted in a verdict in favor of this company.

NEVADA.

Storey County—Comstock Lode.

A private despatch received from Herman Zadig states that the Chollar, Potosi, Gould & Curry and Best and Belcher Mining Companies held special meetings at San Francisco on June 12th to ratify the proposition to purchase claims on the Brunswick and to thoroughly explore the same. A two-thirds vote of the stockholders was necessary to do this, but these were easily obtained and the project was finally endorsed, says the Virginia City "Enterprise." It is now almost certain that the other companies will follow.

Following are extracts from the latest weekly official letters from the mine superintendents:

Alta Mining Company.—This company has been advised of the shipment of a bar of bullion valued at $4,066, being the clean-up of the mill on the recent run.

Belcher.— the yield of this mine during the past week was 43 tons of ore, the average battery sample of which showed an assay of $30.71 per ton.

Chollar.—We have started a winze from the 650 level, which is a continuation of the winze sunk from the 550 level. It is down 14 ft. on the slope. The first 10 ft. was sunk through a width of 6 ft. of good ore, with bunches of very rich ore through it, and the last 4 ft. was in quartz giving low assays, but containing spots of pay. During the past week they extracted and sent to the Nevada mill 150 tons and 900 lbs. of ore, the battery sample of which was $31.52 per ton. Shipped during the week five bars of bullion, the par value of which was $13,560.59 (the May clean-up) the coin returns of which have not yet been received. The bullion statement of the Chollar for May is as follows: Worked at the Nevada mill, 1,070 tons of ore; gross proceeds in bullion, $26,495.60; cost of reducing, $6,420; net proceeds on bullion, $28,075.60; assay value per ton, $28.85; gross average per ton, $24.76; net average per ton, $18.76. Milled worked up to 85·8%.

Consolidated California & Virginia.—On ninth floor, first floor above the sill floor of the 1,650 level, the drift south from east crosscut from drift south from south end of stope has been extended to a total length of 152 ft.; face in porphyry and quartz of low assay. On the twelfth floor the drift south from east crosscut was extended to a total length of 175 ft.; most of the work here consisted in timbering. On the second floor from the opening made from the drift south from east crosscut from main north lateral drift on sill floor of this level, in working north, we extracted 10 tons of ore assaying $30.40 per ton; 1,750 level, opening on seventh floor above sill floor of this level has been enlarged to size of 28 ft. in length by 6 ft. in width, carrying ore 4 ft. in width and assaying from $32 to $45 per ton. From this floor and from second, third, fourth, fifth and sixth floors have extrated 150 tons of ore, making the total extracted for the week 160 tons, average assay value of which per mine car samples was $38.55 per ton.

Crown Point.—The raise from the west crosscut on the 700-ft level has been connected with the fifth floor of the stope and the chute completed. The last five or six ft. of the raise is in quartz assaying from $8 to $9 per ton. We are preparing to prospect from the raise from No. 1 east crosscut on the 700-ft level. We extracted during the past week from the stopes 611 tons and 1,580 lbs. of ore, the average battery sample of which was $9.54 per ton, of which $849 per ton was gold.

Crown Point Mining Company.—At the annual meeting of the stockholders of this company, held in San Francisco on June 5th, 79,518 shares were represented, and the following gentlemen were elected to serve as trustees for the ensuing year: James Newlands, president: A. K. P. Harmon. J. P. Martin, James Newlands, Jr., and C. L. McCoy. C. L. McCoy was re-elected secretary, and W. E. Sharon superintendent. The secretary's financial statement showed a credit of $15,704. The superintendent's annual report shows that during the year they have extracted from the 690 and 700 ft. level stopes 18,650 tons of gold ore, of which 18,569 tons have been worked, the balance remaing on hand. From this ore there was obtained bullion valued at $157,754, calculated at par, from which coin returns of $147,290 were received. The average fineness of the bullion was 574·9 in gold; its value per ounce was $12.42, and the yield per ton in coin $7.90.

Potosi.—The east crosscut from the end of the south drift on 550 level is out 124 ft; the face is in hard porphyry. On the tenth floor of the raise above the 550 level, we are following the streak of pay, from which was raved during the past week 17 tons of ore, the car sample of which averaged $28.12. The streak is about 14 in. wide.

Segregated Belcher.—On the 200-ft. level of the southwest crosscut from the south lateral drift is in 84 ft. The face is in porphyry. The amount of ore hoisted during the past week was 17 tons, the average car sample assay of which was $46.39 per ton.

Segregated Belcher Mining Company.—At the annual meeting of the stockholders of this company, held in San Francisco last week, 89,402 shares were represented and the following gentlemen elected to serve as officers for the ensuing year: Thomas Anderson, president; H. Zadig, vice-president, and J. P. Martin, James Newlands, Jr., and W. H. H. Hatt, trustees. F. B. Holmes was re-elected secretary and the Nevada Bank treasurer. The secretary's repert showed a credit of $4,324.

Sierra Nevada.—The north drift, started at a point 340 ft. west from the mouth of the Layton tunnel, was advanced to a total length of 150 ft.; face in quartz of low value. The northwest drift, from a point 160 ft. west from the mouth of the west crosscut and 200 ft. west of Layton tunnel, has been advanced 32 ft. during the week; total length 50 ft.; face in quartz of low value.

West Consolidated Virginia & California Mining Company.—This company has suspended work in their westerly workings on the 1,100 ft. level of the old Consolidated Virginia shaft because of the strong flow of hot water, which impedes progress.

NEW MEXICO.

Grant County.

Davenport.—In this mine at Carlisle work has continued steadily and a quantity of shipping ore has been taken out. Several leases have also been made on the claim and work begun on two of them.

Keno.—This mine, in the Mogollon district, has been bonded to Colorado parties, who will begin development work at once.

Van Smelting Company.—This company's smelter, at Silver City, has just completed its first run and has made a shipment of copper matte carrying a considerable proportion of gold and silver. Work is to be continued steadily, a supply of ore having been secured.

Santa Fe County.

The C. C. Fitzgerald mill, on the Tuerto, near Golden, is running continuously, treating refractory ore with success. However, this is only a test plant and its daily capacity is small.

Socorro County.

(From an Occasional Correspondent.)

Confidence Mill.—This mill is doing good work, averaging 58 tons of ore daily. There is plenty of water in the creek, and the company intends to utilize the water for generating power to run the mill.

Cooney Mill.—This mill, which has been run by water power, is shut down for want of sufficient water. A boiler and engine have been ordered, and the mill will resume work as soon as the machinery is in place. There is plenty of good ore in sight in the mine.

Deep Down.—This mill, which has been breaking custom ore, is shut down for an indefinite time, awaiting the development of the mine.

T. X. Eberle.—Considerable development work is being done on this property in the Cooney mining district. The tunnel on the vein is now in 340 ft. By cross-cutting to the hanging wall the vein was found to be 16 ft. between walls of good milling ore. The crosscut tunnel, originally run to cut the Queen vein, is now being continued to tap the Maud S. vein. This crosscut tunnel will be used as the main working tunnel. As soon as the vein has been tapped, drifts will be run north and south and connections made with the shaft on north end of claim and the south tunnel.

Maud S. Mill.—In the concentrating plant four Frue vanners have been started. Ten stamps are working on the base ore, the remaining five working on the free milling ore.

Oakland.—The owners of this mine are still sinking the shaft and the ore is steadily improving.

Sunburst.—Messrs. Gamblin & Cosgrove are opening up this claim on the Queen vein. A crosscut tunnel was run and the vein has just been tapped. In the shaft on the north end of the claim the vein was found to be 34 ft. between walls. The ore occurs in well-defined streaks.

NORTH CAROLINA.

Cabarrus County.

(From our Special Correspondent.)

Nugget Gold Mine.—This mine continues to produce gold. Mr. Eames, the superintendent, exhibited in Salisbury last week a beautiful rough nugget having the appearance of just coming from a vein, and weighed a little over one ounce. Parties from British Columbia are inspecting the property.

Reed Mine.—The management has been hydraulicking and finding some gold, and is now making ready to open the main shaft on a large quartz vein.

Rocky River Mine.—The main shaft is now down 130 ft., and it is reported that a body of ore 8 ft. in width and of good grade, has been struck. Philadelphia parties have bonded the mine and are working day and night.

Mecklenburg County.

(From Our Special Correspondent.)

McCombs Mine.—At this property there are several hundred tons of ore out, and further development work is doing. A small mill is at work on the ore with good results.

St. Catherine.—This mine has been unwatered, examined and reported on by Mr. Wayne Harlington, mining engineer, for Philadelphia parties.

Test Chlorination Plant.—Capt. John Wilkes, of the Mecklenburg Iron Works, has a complete test chlorination plant erected in Charlotte. It is after the Thies method, and is well constructed.

Randolph County.

(From Our Special Correspondent.)

Much activity is displayed in the mines of this county. The Hoover Hill, Jones, Herring and Eagle mines are in operation. The last named has just been taken hold of by a Mr. Wilmot, of Chicago, who will start the 10 stamp mill at once.

Rowan County.

(From Our Special Correspondent.)

Gold Hill.—At this old mine a few tributers are at work on old tailings that have been worked over many times, thereby keeping up a daily gold record that has not been broken since 1842. Mr. Bloomer, one of the English shareholders, is looking over the property with a view to trying experiments with the cyanide process. Mr. Eams, the late manager, is of the opinion that if the company will devote its money to developing unexplored ground for a continuation of the ore bodies, there is every chance of reviving what has been a rich mine. It is not a question of process to treat the ore, but a question of ore rich enough to treat. There are many thousands of tons of ore in the mine which could be worked with a profit by utilizing the entire mineral contents. But for gold alone the company must search the new ore bodies.

Holtshouser Gold Mine.—This property, some eight miles southeast of Salisbury, is being reopened by its owner, Prof. J. M. Tierman.

Reimer Mine.—The vein at this mine has widened from 4 to 8 ft. in the bottom and is showing up well. The concentrates are reported to be worth $40 per ton. These are being furnished at the mine.

Stanly County.

(From Our Special Correspondent.)

Crawford Gold Mine.—This property has lately produced several nuggets, notably one of 8½ lbs. found in April. The mine is turning out some gold and nuggets, the largest one of late weighing 6½ oz.

Lowder Gold Mine.—The people working this mine have moved in a boiler and pump and have unwatered to the 60-ft. level where, it is reported, they have a 3-ft. quartz vein of free milling ore. This mine has produced several thousand tons of good milling ore.

Parker Gold Mine.—Active work continues on the new shaft and although it started in May it is now down 60 ft. The owners have struck into a belt of conglomerate through which trend stringers of quartz making the belt apparently gold bearing, although it is the general opinion that the quartz furnishes the gold. They have erected and ready to run 100-H. P. boiler with 80-H. P. engine attached to a 16 in. Cornish lift. They propose to sink 250 ft.

OHIO.

Advices from Findlay say the most important decision rendered for years affecting the rights of landowners who have leased their properties for oil production was delivered June 4th, by the Hancock County Circuit Court, Judge Seney presiding. In 1889 John F. Hastings leased his farm of 165 acres to the Ohio Oil Company (a branch of the Standard) with a provision that all wells should be drilled within three years. The company drilled seven

wells and then rested, but having acquired all the adjoining territory developed it, thus drawing off the oil and let Hastings' land in large part remain idle. He wanted his land drilled to get the royalty, and last fall gave T. C. Kelly a lease to put down eight wells, all to be upward of 600 ft. from the Ohio Oil Company's wells. When Kelly began drilling the Ohio Oil Company obtained an injunction. The case finally reached the Circuit Court, where two days were occupied in the trial. The court holds that the seven wells drilled by the Ohio Company did not constitute sufficient development of Hastings' land and the company was bound by an implied contract to produce all the oil possible from the land, instead of draining the oil out by wells on adjoining lands, as had been done. The injunction was therefore dissolved and Kelly will develop the lands. As there are many thousands of acres of rich oil territory held by the Ohio Oil Company in northwestern Ohio in a manner similar to this without any attempt at fully operating it, the effect of the decision will be to get hold of these lands or else force the Ohio Oil Company to develop them at once. The decision was looked forward to with great interest, this being a test case.

OKLAHOMA.

Reports have been received from Boggy Creek of the discovery of gold in paying quantities. Prospectors claim that a lode has been discovered running from Cobb Creek in the Caddo country, at the head of Boggy Creek, a distance of 40 miles. Several mining companies are in process of organization, and a mining town has been laid out and platted under the town site laws. Reports say that people are staking out mining claims at the rate of 100 a day.

PENNSYLVANIA.

Anthracite Coal.

A general meeting of the members of the United Mine Workers of America in the anthracite region will be held at Pottsville in a few days for the purpose of electing delegates to meet the anthracite sales agents of the coal companies with a view to securing representation on the board establishing the scale of prices and to urge the maintenance of coal prices, so that the miners' wage scale shall not be allowed to fall below the $2.50 basis, now in existence. They contend that this old compromise was for the purpose of maintaining the basis at all times and it was never intended that it should go below that figure. The opinion has gone abroad that the mine workers desire an abrogation of the old basis treaty born to this region under the reign of such labor leaders as John Siney and John Parker, but such is not the case. The present movement of the United Mine Workers is to establish a basis below which there shall be no descending and they believe that by united action this desired end can be accomplished. The movement is general throughout the anthracite region.

The town of Jeanesville, one mile south of Hazleton, is greatly excited over a cave-in which occurred there on June 9th. The depression in the earth is due to the running of the pillars in the No. 2 coal mine, which runs beneath the town. Huge fissures have opened in the earth and extend for a distance of 200 yds., affecting the lines of the Lehigh Traction Company and other property. Fears of further trouble are felt. Less than 50 ft. south is the famous Jeanesville stripping. The walls separating this immense excavation tend to make the situation even more alarming.

The projectors of the famous Jeddo tunnel have been successful thus far in draining the water from the mines. As the water recedes, however, debris is being carried in such quantities toward the outlet that the ordinary holes block up, and much trouble is being caused at present. To overcome this the company has decided to ream out the holes to 12 in. diameter, and for this purpose contracts have been awarded. The water has now left the Harleigh mine a little below the first lift. William Lieb explored the slope on June 11th, and found the workings in fairly good condition. The timbers remain intact, and the mine rails are in a good state of preservation. The water from the lower lift, however, will not recede until such time as the Ebervale mine is cleared, as the Harleigh basin is much lower than that at Ebervale.

SOUTH DAKOTA.

Custer County.

Old Charlie.—Operations continue at the Old Charlie mine and mill, at Four Mile, with satisfactory results, says the Custer "Chronicle." The vein is maintaining its width, and the ore improves with depth. A clean up made last week returned $8 per ton, exclusive of the value contained in the concentrates.

Globe.—A force of men is at work on the Globe mine, near Custer, and owned by Haserodt & Harbach. The ore will be shipped to Deadwood for reduction.

Lawrence County.

Accidental Mining Company.—This company recently made a mill test of 100 tons of the cement ore contained in its group of claims, situate at the head of Castle Creek. The result showed a recovery of $3 gold per ton. The test was made in the 5-stamp mill put up by the company a short time ago. Fifteen stamps more are now being added and will shortly be ready to work. According to the "Deadwood Times" this body of cement is very large, and can, under practical management, be mined and milled at an expense not exceeding $1.59 per ton.

Deadwood & Delaware Smelter.—This smelter is now receiving considerable shipments of copper ore from Butte in Montana. The ore, it appears, is just what is needed to flux the Black Hills ores properly. Experiments made with them last fall have been so successful that arrangements have been made for a steady supply.

UTAH.

Juab County.

Shipments from the Tintic district for the week ending June 15th, as reported by the Eureka "Miner," are as follows: From the Bullion-Beck mine, 5 carloads of ore daily; Centennial-Eureka, 9 carloads; Gemini, 4 carloads; Eureka-Hill, 9 carloads; Mammoth, 2 carloads; Spy, 2 carloads Iron mine, 4 carloads; Bullion-Beck mill, 5 carloads concentrates. It is reported that the Utah company will shortly commence the construction of the new wagon road from the mouth of the new tunnel to the Rio Grande tracks.

Salt Lake County.

Old Jordan & Galena Mining Company.—The machinery of the air compressor plant at the South Galena mine in Bingham, one of the properties of this company, is now all in place.

Marion.—This mill, at Mercur, is operating smoothly and turning out on an average of $6,000 in cyanides monthly. Cleanups are made every two weeks, and the product is still going to the Omaha refinery, although it is probable that the company will put in a plant after the style of that just completed by the Mercur company. One of the fortnightly movements of cyanide took place on June 4th, when some $3,000 worth of the cyanides came in and was sent East.

WASHINGTON.

Okanogan County.

(From an Occasional Correspondent.)

Cascade District.—There is quite a mining "boom" in the Cascade mountains, about 40 miles west of Loomis. The district is located near the summit of the Cascades. About $40,000 has been expended by Mr. Marcus Daly, of Butte, Mont., who has the mines under bond. A wagon road and a trail to the mines have been finished, and there are over 500 people on the ground, and men are going to work as fast as room can be made for them. The mines show very large outcrops of high grade gold rock.

Grand View.—At this mine, on the western side of the Palmer Lake, the shaft is now down about 50 ft. The lode is reported to be wide at that depth and carrying free gold and furnishes ore very easily worked.

Ivanhoe.—At this mine 850 tons of ore are on the dump and in the bins, and preparations are being made to start up the mill. Some additions have been made, including new amalgamation tables to work the slimes which have heretofore been carried off in the tailings. The principal value of the ore is in silver.

Loomis District.—Several properties in this district are being taken up and developed by Chicago and Milwaukee capitalists. They are principally high grade silver propositions, although most of the properties in this camp are gold. A 10-stamp mill is in operation. There are many promising gold properties, several having ledges over 40 ft. in width, and running from $4 to $10 per ton in gold, but they require large capital to develop them properly.

Neiderauer Ranch.—Outcroppings of quartz carrying free gold were recently discovered on this ranch about half way between Loop Loop and Conconully. The outcroppings have been traced for nearly a mile and already a number of localities have been taken up.

Wyandotte.—This property, with some adjoining claims, has been bonded to parties from Milwaukee, Wis. They have put a large force at work and expect to develop the property thoroughly. It is on the Similikameen River.

WYOMING.

Albany County.

(From Our Special Correspondent.)

A Kansas company bonded a large tract of land south of the city of Laramie and secured options upon the gypsum deposits at Red Buttes; also upon a peculiar deposit of earthy material which is composed of chalk and gypsum. The company is arranging to erect a plant for the manufacture of plaster, stucco and what they call agatite. The agatite is to be made from the chalk and gypsum and placed on the market as a superior plaster for the interior of buildings. The works are to cost $50,000, and will employ 30 men.

Carbon County.

(From Our Special Correspondent.)

Hanna Coal Mine No. 1.—The fire which raged for several months in this vein has been extinguished, the debris cleared away, and the mine again put in working order. Upon starting work the production was 600 tons per day.

Laramie County.

(From Our Special Correspondent.)

Silver Crown.—This camp is located about 20 miles west of Cheyenne and has been inactive since the general depression. At the present writing a new company has commenced operations on the copper mines and is making a large shipment to the Omaha smelter. The ore is a sulphide containing from 10 to 20% copper and about $10 in gold and silver.

Sweetwater County.

(From Our Special Correspondent.)

Union Pacific Coal Mine No. 3.—This mine, located at Rock Springs, has been abandoned on account of the great distance of the works from the mouth of the slope and a slight depreciation in the fuel. The plant will be placed at another slope.

LATE NEWS.

According to report, Thomas D. Kelly, of Galena, Ill., began suit on the 19th inst., for a one-sixth interest in the Little Johnnie mine at Leadville, which has proved itself a bonanza to the owners. The plaintiff's son, T. J. Kelly, was one of the original patentees of the mine. He died in 1886, and it is charged that he was induced to sell for $1,000 by fraud.

A telegram from Jimenez, Mexico, dated June 20th, states that F. W. Lowry and Charles Simpson, two American mining engineers, who left there about three weeks ago on a visit to mines in the Sierra Madre mountains, 100 miles southwest of Jimenez, became involved in a quarrel with the Mexican servant who accompanied them. The Mexican shot and killed Simpson, and in turn he was fatally shot by Lowry. Lowry and Simpson went to Mexico from New York.

The Superior Court of Milwaukee County, Wisconsin, in the action of the Northwestern Iron Company, of Milwaukee, against the West Superior Iron and Steel Company.—The Milwaukee Court appointed Robert Kelley receiver, and enjoined creditors from foreclosing. The Supreme Court permits foreclosure proceedings and ousts Kelley from the receivership. The effect will be the immediate sale of the plant, with probable purchase by the bondholders. John D. Rockefeller owns $1,000,000 of the bonds and will thus probably secure control of the works.

SPECIAL DISPATCH TO THE "ENGINEERING AND MINING JOURNAL."

Our special correspondent in Cripple Creek, Colo., wires us, June 20th, as follows: The C. O. D. mine, in Poverty Gulch, has just been sold to a French syndicate for $240,000. The last payment was to have been made in October next, but the purchasers were so well pleased with the showing made in the property that they paid the final amount at once and have taken possession of the mine. The Orphan Belle group, on Bull Hill, has been leased to 18 different persons, who employ 124 men. Four cars were shipped yesterday from the old incline shaft sunk three and a half years ago.

Work on the Poorman gold mines, at Silver City, Idaho, has been taken up energetically and systematically by the new company. The upper or Oso tunnel is continued at the rate of about 20 ft. per week, and seems to have now passed beyond the old stopes and workings. It shows about 3 ft. of vein matter, the whole constituting good milling ore, with occasional patches of richer ore. A raise is about to be commenbed on this ore body. The raises and winzes on the Empire vein have developed an ore-body of between $15 and $20 ore. The Belle Peck tunnel, nearly 300 ft. below the Oso, is being driven as fast as possible in order to reach the ground under the old workings, which had to stop in good ore on account of the water, By the work now in progress the ground between these old workings and the Belle Peck tunnel will be drained and opened up. Owing to the uncertainty about the available water supply the management will for the present erect only a 10-stamp mill, which will be enlarged later to double its capacity. If necessary water supply can be secured at this point. If this should not be the case, an additional mill will probably be erected on the Sinker side of the mountain. A cable tram about one mile long will connect the mouth of the Belle Peck tunnel with the mill. It is expected that all the preparations will be completed early in September.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, June 21.

Statement of shipments of anthracite coal (approximated) for week ending June 15th, 1895, compared with the corresponding period last year:

Regions:	June 15, 1895. Tons.	June 16, 1894. Tons.	Difference.
Wyoming	473,735	641,829	Dec. 168,094
Lehigh	148,648	164,883	Dec. 16,235
Schuylkill	294,246	335,447	Dec. 41,201
Total	916,629	1,142,159	Dec. 225,530
Total for year to date	18,597,931	16,826,456	Inc 1,771,475

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending June 15th and year from January 1st:

Shipped East and North:	1895. Week.	1895. Year.	1894. Year.
Phila. & Erie R. R.	875	27,211	26,068
Cumberland, Md.	68,479	1,373,984	1,301,132
Broad Top, Pa.	6,825	192,975	122,371
Clearfield, Pa.	81,875	2,790,360	1,122,734
Allegheny, Pa.	40,025	2,200,484	474,891
Beech Creek, Pa.	45,000	1,2 3,550	836,699
Pocahontas Flat Top	†17,450	†1,269,275	1,357,925
Kanawha, W. Va.	68,475	1,526,090	1,058,226
Total	329,004	10,583,929	6,360,046

† Week ending June 8th.

Shipped West:	1895. Week.	1895. Year.	1894. Year.
Pittsburg, Pa	40,850	929,824	573,892
Westmoreland, Pa	2,950	958,230	556,632
Monongahela, Pa	16,300	387,371	164,276
Total	86,100	2,266,125	1,294,200
Grand total	415,104	12,850,354	7,591,246

Production of coke on line of Pennsylvania Railroad for the week ending June 15th, 1895, and year from January 1st, in tons of 2,000 lbs.: Week, 169,766 tons; year, 2,541,641; to corresponding date in 1894, 1,197,826 tons.

Anthracite.

We must continue to report an exceedingly dull and depressed market. There is really no change from the condition outlined in our last week's review unless it is that the ominous features which we then noted have become more accentuated.

Producers are apparently trying to impress the public with the idea that the output is being restricted to within safe limits because, forsooth, the monthly output will show a marked decrease as compared with June, 1894. May, 1895 shows a decrease of 95,331 tons; as compared with the corresponding month last year, but for the five months ending may 31st, this year, shipments exceed last year's by 2,616,084 tons. It will be the same with June which last year was the record breaker in the matter of output. There is not a sales agent in the city who does not admit freely that all the companies are mining more than the market warrants, the excuse given being in almost every instance that each company is afraid of losing customers if it does not mine as much proportionately as its competitors. The demand is so light that 2,500,000 tons for June would be too much rather than too little, that is if prices are to be held. The reason for this small demand is to be found in the uncertainty as to the future and the lack of confidence of both buyer and seller. Dealers see no reason why they should buy ahead at this time. Nothing is to be gained by so doing, since it is firmly believed that the danger of an advance is so small as to be a negligible factor in the calculations of buyers. Nobody can blame the dealers.

Prices continue weak and unsettled, from $3 up for stove coal. While it is scarcely fair to say that $3 will buy any quality of stove coal, we hear of grades selling for $3.35, which usually sell for 40c. or 50c. above the average grade. Sellers are not openly naming low prices, and the quantity of coal coming to the market is diminishing, thus decreasing proportionately the necessity of selling at low figures.

As we said last week, the worst feature about the situation is the gloomy outlook for the future. There is a belief prevalent in certain sections, especially in Wall street, that because the coal trade has managed in years gone by to extricate itself from similar troubles, it will not be long before the presidents get together again and fix up matters in some way. In other words, that when a really dangerous point is reached relief will be forthcoming. Mr. Pierpont Morgan is looked upon by many as the delegate of Providence in this crisis, though what grounds there can be for such an assumption is a mystery to all really well informed and discriminating observers. No efforts whatever are making to reach an understanding among the companies. Having no allotments or percentage basis on which to work, producers have resorted to the makeshift of mining but a certain number of days per week. The sales agents agreed to this at their last meeting. Two weeks later the largest companies disregarded their recommendations.

The Susquehanna & Western and its narrowly averted bankruptcy is an example of the fate which may be in store for larger companies at no distant day. The company in question, owing to the deplorable condition of the coal trade found itself unable to meet obligations unwisely incurred in order to extend and enlarge its coal business. There are companies to-day which have been paying the interest on their bonded indebtedness regularly and others (alas, how few!) which have continued to declare dividends on their stock. How they can continue to do so unless the coal trade improves is an open question.

The vice-president of the Lehigh Valley Coal Company has been quoted as saying that the average f. o. b. prices received by his company during May were: Broken, $2.93; egg, $2.90; chestnut, $2.95, and stove, $2 96.

The Lehigh Valley handles a great deal of the coal of the independent operators along its line, which it buys for 60% of the tidewater price. Now, 60% of $2.90 is $1.77, which is what the operator receives for his product at the mine. The cost of production varies considerably, of course, but we venture to say that if one figures out the actual cost of mining and preparing, royalty never less than 25c. and generally 50c., interest on the capital invested in the breaker, and the amount per ton which should be set aside as a sinking fund if the miner owns the land, to offset the constant depreciation in the value of the mines by reason of the coal removed, the margin of profit is invisible. Now, the Lehigh Valley Railroad gets 40% freight, or $1.18 per ton. Deduct 10c. for selling commission and 10c. for loading, and we have a freight rate of 98c.

What we have specified in the case of the Lehigh Valley applies to others. The Delaware & Hudson, an old company and a steady dividend payer, which enjoys an advantageous position for getting good prices. If this old company, whose collieries will be among the first to be exhausted, would set aside the proper amount for a sinking fund, its balance sheets might surprise some people.

There is a lack of confidence on the part of the companies. Each mistrusts the other. The probability of a settlement of the present difficulties is not encouraging. It looks as if anthracite coal would become like any other natural product in the matter of prices, that is, governed by the laws of demand and supply. And if this ever happens, even the wildest "bull" on Wall street would become bears.

NOTES OF THE WEEK.

The Bureau of Anthracite Coal Statistics reports shipments of anthracite coal for May and the five months ending May 31st as below, the statement being compiled from the returns furnished by the mine producers.

	May 1894.	May 1895.	Five months 1894.	Five months 1895.
Wyoming Region	2,318,291	2,007,253	7,890,355	9,123,257
Lehigh Region	554,960	583,906	2,291,864	2,577,138
Schuylkill Region	1,011,026	1,157,787	4,098,958	5,196,567
Total	3,881,277	3,788,946	14,281,177	16,789,262

The stock of coal on hand at tidewater shipping points on May 31st, 1895, was 736,996 tons, a decrease of 80,334 tons during the month.

The increased production reported this year was 2,616,085 tons, or 18·3% for the five months.

Bituminous.

The demand for soft coal has fallen off since our last review of the trade. The conditions which delayed shipments have been removed, so that the supply became much better. First shipments on contract orders are pretty well finished. Many salesmen report that consumers generally are well stocked up, but this is doubted by producers. The demand continues most active from points east of Cape Cod than from elsewhere. The all-rail trade is moving smoothly, although this branch of the business seems to have suffered as much as if not more than other lines from cutting of prices this year. The result has been that the margin of profit has grown so small that many producers are abandoning this field for more profitable outlets.

The trade local to the snipping is quiet. There has been more changing of customers this year than usual. There is considerable discontent among bituminous coal producers on account of favoritism shown by the main line roads. In a number of instances figures have been named by certain parties, which, if the regular schedule rates had been paid, would not even yield the price paid for the actual mining. We understand that these facts have been brought to the notice of the railroad officials and their truth practically admitted.

Transportation is much improved. Many of the producers are still limited to a certain number of empties, but the limit is much higher than it was a fortnight ago.

In the vessel market there is an abundance of vessels, though they are difficult to get at the lowest rates and are fighting strongly against reductions. We quote ocean freights as follows from Philadelphia: To Boston, Salem, Portland, Portsmouth, Providence and New Bedford, 75c. This rate has been shaded 5c. To New Haven, 70c.; Wareham and Newburyport, 85c.; Lynn, 85@90c; ice ports, 75c. and towage where usual; Norfolk, Newport News and Baltimore, 5@10c. higher. Vessels are seeking chiefly charters for points around the Cape to secure return cargoes of ice.

Buffalo. June 20.

(From Our Special Correspondent.)

The anthracite coal trade is quiet and prices nominally unchanged.

Bituminous coal fairly active for vessel use and for manufacturing purposes. Quotations nominally unchanged, but market still favors the buyer. Stocks ample for trade requirements.

The shipments of coal westward by lake from Buffalo from June 9th to 15th, both days inclusive, aggregated 53,280 net tons distributed as follows: 21,260 tons to Chicago; 19,000 tons to Milwaukee; 2,700 tons to Duluth; 2,450 tons to Superior; 800 tons to Gladstone; 600 tons to Lake Linden; 600 tons to Benton Harbor; 1,038 tons to Saginaw; 1,700 tons to Bay City; 650 tons to Ladington, and 2,500 tons to Green Bay. The rates of freight were 10c. higher to Chicago and Milwaukee and 5c. higher to Green Bay. The quotations were: 40@50c. to Chicago; 35@45c. to Milwaukee; 45c. to Green Bay; 35c. to Saginaw; 20c. to Duluth, Superior and Gladstone; 25c. to Toledo, and 30c. to Bay City and Ladington. Closing quiet and firm.

Mr. Charles H. Keep, the secretary of the Lake Carriers' Association, has been asked questions relative to the water level of the lakes by Major Ruffner, United States engineer in charge of the Buffalo harbor, etc. These answers will have a bearing upon the discussion as to the probable effect of the Chicago drainage canal on lake levels. In substance his reply is as follows: A lowering of the lake levels by three inches would produce a diminution of the carrying capacity of the American lake fleet in a season 1,142,370 tons; six inches, 2,284,740 tons, and nine inches, 3,427,110 tons. In dollars and cents, and estimating the earnings of lake vessels at an average of 50c. per ton of cargo carried, over and above cost of loading and unloading, three inches would diminish the earnings of the fleet a year $571,185; six inches, $1,142,370, and nine inches, $1,713,555.

Anthracite coal operators are complaining of the scarcity of cars.

At Erie, Pa., 50c. is the price paid for freight on coal by lake to Milwaukee; at most Ohio ports 40c. is the price to Milwaukee.

A $60,000 dock is to be built at Dollar Bay for handling coal, general merchandise, etc.

Messrs. H. K. Wick & Co., of this city, have retired from the vessel fueling business, and Messrs Frank Williams & Co. have succeeded them. The union of these concerns places the lighters, docks, etc., of the first-named firm in the hands of Messrs. Frank Williams & Co.

Chicago.

(From our Special Correspondent.)

There has been no improvement whatever in the coal trade of Chicago during the past week, and the situation is dull. During the summer months in a good business year the amount of coal sold in Chicago is not extra large. Last year during June trade lessened greatly from June, 1893, and this year will about hold its own with June, 1894. The dull condition prevails in whoiesale and retail trades, and applies to anthracite and bituminous coals. There is a fair demand for soft coal by the numerous manufacturing concerns, but the amount consumed is very small in comparison to the demand when business is brisk. The limited demand for both coals continues to effect prices. Coke sales are not very large, while prices are but mediumly firm.

Pittsburg. June 20.

(From Our Special Correspondent.)

Coal.—Operations have gradually been resumed among the mines that furnish the lake and other points by rail; on some lines shippers are complaining about the scarcity of cars. The railroad operators are trying to make up for loss time during the strike. The coal trade is showing signs of activity, as the large number of works starting up will require heavy shipments to keep them running. River shipments, there has been none since April. The June rise has failed so far. Some of the operators have given up the hope of a rise before fall; we still believe that there will be a rise and big shipments before that time. The coal loaded exceeds 20,000,000 bush. The miners employed at Coal Bluff and Cliff Banner mines notified the company they were willing to resume work under the same conditions as the New York and Cleveland Gas Company. A syndicate of Pittsburg capitalists is securing options on all the underlying veins of coal near Logan's Ferry which can be had. The options are for two years at the rate of $35 per acre. Already about 3,000 acres have been secured; the company wants 5,000 acres.

Connellsville Coke.—The increase in the production of coke exceeds 9,000 tons and the increase in the shipments 650 cars. This great upward jump was caused principally by the rumors that on July 1st the price will be advanced to $1.50; the nominal price is now $1.35 a ton. Of the 17,834 ovens in the region, 13,161 were in blast and 4,673 were idle.

Coke from Monongahela Slack.—Four hundred and fifty barrels of slack have been loaded at the Walton Mines, at Elizabeth, and will be shipped to Germany to be tested in a new process of coking. If successful the system will be brought to Elizabeth. There are great quantities of slack wasted at the mines out of which much profit could be realized by coking. The average time made by 71 plants in blast was 542 days as against the preceding week of 501 days. The H. C. Frick Coke Company made a full five-days run at all its 22 plants in blast; the plants are scheduled for a five-days run and some of them may make six days. The McClure Coke Company made a full six days run all round, and are scheduled for six days this week. Shipments distributed as follows: To Pittsburg, 2,341 cars; to points East, 1,638 cars; to points west of Pittsburgh; 3,660 cars. Total, 7,639 cars.

Shanghai, China. May 24.

(Special Report of Wheelock & Company.)

Coal.—In Japanese a fair business was done during the past fortnight at reasonable prices, but at the close there was less inquiry and the market is slightly weaker. In Cardiff there has been nothing but a few sales from godown to consumers. In Australian there have been no arrivals and the market is strong. We may add that a number of sorts of Japanese are beginning to come into the market again, and Takasima and Namazuta lump are again to be had, though no Miike has yet been received. We quote closing prices as follows: American anthracite, 12 taels per ton; Cardiff, 11 taels; Australian, 10·50 taels for Wollongong, and 7·50 taels for New Castle; Japanese 7·75 taels for Takasima lump, 5·25 taels for Namazuta lump, and 4·75 taels for ordinary sorts.

Kerosene Oil.—More attention has been paid to Russian oil, and sales of fair quantities have been made. There have also been a number of sales of Chester, but very few of Devoe's. We note the arrival of one cargo with 63,234 cases American. Stocks on hand are about 899,000 cases American and 123,000 cases Russian. We quote for American 1·68½@1·71 taels per case for Devoe's, and 1·62@1·65 taels for Chester. For Russian we quote 1·62@1·65 taels per case for Batoum, and 1.60@1.62 taels per two tins for Batoum bulk.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, June 21, 1895.

Pig Iron Production and Furnaces in Blast.

Fuel used...	Week ending June 22, 1894		Week ending June 21, 1895.		From Jan. '94.	From Jan., '95.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	30	12,350	32	20,124	350,889	515,650
Coke...	41	47 696	122	131,800	2,146.286	3,378 140
Charcoal...	20	3,930	18	3,961	99,958	99,601
Totals ...	91	63,976	172	155,885	2,637,133	3,993,691

The iron market during the past week has shown a continuation of the improvement which is now so apparent. The advance of 50c. in pig made by both Southern and Northern makers has resulted in temporarily reducing sales in certain sections, but the price is held firm, with promise of a further advance, so consumers will be likely to come in for stocks before long. Steel rails have advanced $2 to $24 by the action of the Eastern producers, and a further rise to $26 is confidently predicted. The railroads, particularly in the West, have commenced to buy, and both billet and rail mills are full of orders. In Birmingham No. 1 Foundry is now selling at $8.75, as against $7 two months ago. If the price reaches $9 the coal miners working on a sliding scale will receive 2½c. per ton advance. For every 50c. additional rise in pig 2½c. per ton will be granted the miners, until $11 is reached, when they are to receive 50c. per ton. Pratt mines are now paying 37½c.

The proposed selling pool for the leading Southern furnaces has not yet been consummated, and notwithstanding reports to the contrary, it is not probable that any iron-clad agreement will be entered into by any of them. A provisional pool may be formed temporarily, but the various interests have too much at stake to agree to any permanent arrangement.

NOTES OF THE WEEK.

The conference between the wage committees of the Amalgamated Association and iron and steel sheet manufacturers ended in Pittsburg, June 21st, by the signing of the scale to run from July 1 to June 1 of next year. A sliding scale based on the selling prices of sheets was adopted, instead of the old basis of the selling price of bar iron. The workers are to get 2% of the increase in every 10% advance in the price of the sheets. This is practically the same as last year's scale. This wage agreement insures work for 20,000 men. The tin-plate scale will be taken up to-day.

The following table, compiled by the Bureau of Statistics, shows the quantity of iron, steel and iron ore imported into the United States during the first four months of 1895.

Acticles—Gross tons.	Jan.	Feb.	March.	April.
Pig iron.....	1,287	1,174	1,373	911
Scrap iron and scrap steel	271	178	52	3
Bar iron..... ..	2,640	295	459	301
Iron and steel rails.....	11	.... ..	3	368
Steel ingots, billets, blooms	1,536	1,050	977	1,743
Sheet, plate and taggers,.	2,025	1,462	1,829	1,194
Tinplates	22,492	15,044	24,586	20,731
Wire rods, iron or steel...	2,133	2,120	2,060	1,808
Wire and wire rope	989	276	471	484
Anvils.....	51	16	79	35
Chains	68	27	36	19
Total..	33,506	21,642	31,305	27,397
Iron ore.....	17,879	21,603	30,052	29,464

The total value of our imports of iron and steel, both free and dutiable, excluding iron ore, in the four months above named amounted to $8,194,372, against $6,296,365 in the corresponding months of 1894, an increase of over 30%. The increase is due chiefly to the large importation of tinplates of the first four months of 1895 as compared with the first four months of 1894, the imports for 1895 being 82,853 tons, against 67,386 tons in 1894.

Pig Iron.—The market has been fairly active during the week, but in consequence of the advances made in both Northern and Southern irons sales have not been so numerous as during the two preceeding weeks. Quotations are as follows: Northern brands, No. 1 X, $13@$13.50; No. 2 X, $12@$12.50; gray forge, $10.50@$11; Southern irons, No. 1 foundry, $12.75@$13.25; No. 2 foundry, $12@$12.50; No. 1 soft, $12@$12.50; No. 2 soft, $11.75@$12.

Spiegeleisen and Ferromanganese.—This market has been quiet during the week, fair sales having been made. Quotations are: $18.75@$19.25 for 20% domestic spiegeleisen at furnace, and $21@$22 for foreign, and $46.50@$47 for 80% foreign ferromanganese at tidewater.

Rails and Rail Fastenings.—Business has been quiet awaiting the results of a meeting of rail makers held in New York June 20th. The result of this was an advance in standard rails to $24, the figure held last year with a prospective advance of $2 more. Light sections are quoted $24@$26, but this will, it is thought, be advanced. Rail quotations are: Standard rails at tidewater, $24.75. In rail fastenings prices remain. Fish and angle plates, 1·25@1·30c. at mill; spikes, 1·55@1·60c.; bolts and square nuts, 1·90c.@$2.; hexagonal nuts, $2@2·10c. delivered.

Structural Iron and Steel.—Business has been quiet during the week and no sales of consequence made. Prices are firm and moving to a higher basis Quotations are: Angles, 1·30@1·35c.; beams up to 15 in., 1·40@1·50c.; channels, 1·40@1·50c. on dock; tees, 1·45@1·60c. on dock.

Old Material.—The market in this material is quiet. A round lot of old iron and street rails was sold. Nominal quotations remain. Old steel rails, $9.50@$10; old iron tees, $10@$11 per ton; New York railroad scrap, $11.50@$12 per ton, delivered at mill, and yard scrap at $10; wrought turnings, delivered at mill, $8@$8.50; No. 1 wrought scrap at $9.50@$10.50 from yard, and machinery cast scrap $9@$10; old wrought tubes and pipe, $6.50@$7; old car wheel, $9.50@$10.50, New York; cast borings, $6@$6.50, delivered at mill.

Merchant Steel.—But little business has been noted. Prices firm. Quotations are: Tool steel, 5·65@6·25c.; tire steel, 1·45@1·50c.; toe calk, 1·60@1·70c.; Bessemer machinery, 1·25@1·40c.; open-hearth machinery, 1·85@2c.; open-hearth carriage spring, 1·70@1·90c. crucible spring, 3·40@3·65c.; axles, scrap, 1·35@1·50c. steel, 1·40@1·50c.; bars, common, 1·15@1·30c.; refined, 1·15@1·90c.; steel hoops, 1·45@1·60c. delivered; hooks and pins, 1·40@1·50c.; plates, flange, 1·55@1·65c.; firebox, 1·90@2c.; marine, 1·45@1·55c.; sheared, 1·80c.; shell, 1·40@1·50c.; tank, 1·30@1·40c.:

Buffalo. June 20, 1895.

(Special Report of Rogers, Brown & Co.)

The Eastern field is beginning to catch some of the spirit which has been in evidence in the Central West for two or three weeks past, and the market is quite active with an advancing tendency.

Heavy sales by Lake Superior charcoal furnaces have reduced the unsold stock to such an extent that an advance of ·50 per ton has been made, which is the first advance recorded so far in Lake Superior charcoal iron. It is still very low, however, and if the next week shows as large a demand as the last one, it will undoubtedly be reflected in future prices. The advance really only brings these irons on a plane with Bessemer at most of the competing points, and they still remain the cheapest thing, relatively, in the market.

Our quotations below are on cash basis f. o. b. cars Buffalo: No. 1 foundry strong coke iron, Lake Superior ore, $12; No. 2 foundry strong coke iron, Lake Superior ore, $11.50; Ohio strong softener, No. 1, $12.10; Ohio strong softener, No. 2, $11.60; Jackson County silvery, No. 1, $15.25; Lake Superior charcoal, $13.00; Southern soft, No. 1, $11.75; Southern soft, No 2, $11.50; Hanging Rock charcoal, $18.50.

Chicago. June 19.

(From Our Special Correspondent.)

In nearly every line of iron and steel the market is strong. Pig iron continues to be in heavy demand, a couple of sales having been made during the week that will aggregate over 50,000 tons. Inquiry is large in billets and steel rails, but few sales are being made as the steel company is waiting the results of the meeting of Eastern steel rail dealers, who will determine on prices. It is probable that an advance of $2 will be made in steel rails, and also advances in billets and rods.

Pig Iron.—The past week has been without a doubt the best one observed here in years, the aggregate sales having footed up nearly 100,000 tons the majority of the sales having been made at a price of $1 per ton, over the quotation of June 1st. In the past four weeks Northern iron has jumped up in price $1.50 and the Southern material nearly as much. Two contracts made in Northern iron during the week footed up over 50,000 tons, while there was a number of orders booked for lots from 1,000 to 5,000 tons. In Southern iron sales have been plentiful, the largest having been for 2,500 tons. Southern No. 1 foundry iron has advanced another 50 cents per ton.

Prices are per gross ton f. o. b. Chicago: Lake Superior charcoal, $13@$13.50; Lake Superior coke No. 1, $11.25@$11.50; No. 2, $10.75@$11; No. 3, $10.50@$10.75; Local Scotch No. 1, $11.25; No. 2, $10.75@$11; Jackson County silveries, $14.50@$15; Southern coke, foundry, No. 1, $11@$11.25; No. 2, $10.75@$11; No. 3, $10.25@$10.50; Southern soft, No. 1, $11@11.25; No. 2, $10.75; Southern car-wheel iron, $17.50@$18; Southern silveries No. 1, $11.25@$11.75; No. 2, $11.25; Tennessee charcoal No. 1, $13@$13.50; Bessemer, $11.75@$12; Ohio strong softeners, $13.

Structural Material.—The market for structural material remains good, a large number of small orders having footed up a very fair week's business. The Lake St. Elevated Railroad is extending its line rapidly through Lake to Wabash ave. The North Western elevated begun in earnest during the week to erect that structure. Quotations are f. o b. Chicago, mill lots: Angles, 1·35@1·40c.; tees, 1·60@1·65c.; universal plates, 1·40@1·45c.; beams and channels, 1·50c.

Billets.—But few sales of billets are being made, though the Steel company is overrun with inquiries.

Steel Rails.—Like billets the Steel company is resting on its oars awaiting the advent of higher prices. It booked but few orders during the week, but had ample opportunity to close a big tonnage. The meeting of the Eastern rail dealers will determine the price of rails here, and it is presumed that the local mills will not vary from those. The present price of rails is $23@$25, but expectations are out for an increase of $2 by next week.

Bars.—The sales of bars during the week have been very satisfactory, and the prices obtained were good. Implement makers are buying more heavily, and some large contracts are expected to develop within the next few weeks. There has been a small advance in bar iron prices, and these will probably go into effect shortly. Quotations are, common iron, 1·15@1·25c., and refined iron, 1·25c.

Merchant Steel.—Business transacted in merchant steel during the week has been but of fair proportions. Prospects are quite good for an increased trade as soon as crop reports are made known. Prices are: Carload lots, machinery, 1·0@1·70c.; tire steel, 1·50@1·60c.,; Bessemer bars, 1·35@1·40c.; toe calks, 2·00@2·10c.; crucible spring 3·40@3 65c.; tool steel, 5½@6½c.; specials, 10·50@11·50c.

Old Rails and Wheels.—Speculators have a sound hold on the scrap business, as may be observed from the ludicrous price of old iron rails, viz.: $13.50 at $14, and for old wheels $11. At these prices no one appears willing to buy scrap and consequently are buying pig iron instead.

Scrap.—The scrap heap is not diminishing much these days, as dealers appear to have a large head as to prices. The sales of the week did not aggregate much, nor is there any liklihood of sales being large until a reduction is made. Quotations are: Forge, $9@$9.50, cast iron borings, $4.50; wrought iron turnings, $5.25@$5.50; axle turnings, $6.50; mixed steel, $7; iron axles, $13.25.

Philadelphia. June 21.

(From Our Special Correspondent.)

Pig Iron.—More or less unreliable news is flying about this week concerning selling prices of all kinds of crude iron. Certain interests are anxious to have the highest quotations given, while buyers are equally averse to such bolstering up of prices. The upward tendency is strong and by another week reliable quotations can be made. Forge iron is very active and has been sold at $11 for forward delivery. There is an anxiety to get the better brands. Large contracts have been placed for No. 2 for fall delivery. Good sized orders are coming along for No. 1 and $13 has been already paid, some parties claiming higher figures are to be had. The market, with all its activity and strength, has a more or less unsettled and feverish side to it.

Steel Billets.—Several parties are in the market this week for quick delivery orders for billets. A few have bought, but they decline to say what they paid. Brokers claim an advance of 50c. has been brought about within a week, but it will be best to let the commotion settle a little before quoting some of the figures claimed. Large buyers are opposed to paying $21.

Merchant Iron.—The bar mills are all busy, and orders are accumulating, but on August deliveries it transpires that certain interior manufacturers were found who took orders for large lots at less than prevailing rates. Bars are worth from 1·25 to 1·45.

Nails.—There is a steady demand for nails cut and wire, and large store and factory shipments are being made to local and outside points. The nailmen say prices will advance naturally.

Skelp.—The filled-up condition of so many skelp mills enables manufacturers and brokers to assume a bold front, and this they have done. In fact, some business is prowling around after takers, and there are some claims made as to prices paid that look as if somebody was badly in need of skelp.

Sheet.—Large orders for sheet are coming in at an advance over prices quoted last week. Certain large consumers are now buying ahead, a thing they say they have not done for nearly two years.

Merchant Steel.—All kinds of merchant steel is moving up and orders are accumulating. Prices are remarkably steady considering the demand.

Pipes and Tubes.—The urgent orders during the past few days for pipes and tubes have carried prices permanently up and brokers say to-day there are favorable prospects for the early placing at good prices of some of the largest orders of the season.

Plate and Tank.—Several promised orders were sent to mill this week. Railroad requirements figure among them. Boiler plate and general machine shop and tank requirements are coming along. Prices are higher, but after all there is no small share of the new business getting in at less than current rates. Tank, 1·40.

Structural Material.—Orders for building work, though individually small, are in the aggregate large. The mills are in excellent shape, and prices are $2 to $3 better than six weeks ago. Some claim the advance is greater.

Steel Rails.—Rails have advanced $2, or rather the advance that it was said had been made is now admitted. A rumor to-day is that there will be another advance. Mills are filling up.

Old Rails.—Old rail brokers are expecting to do big business in old iron rails in a few days.

Pittsburg. June 20.

(From our Spcial Correspondent.)

The Iron and Steel Trade.—Pittsburg is the barometer of the iron and steel world. When our mills are too busy to afford the usual stoppage during the summer there is a strong foundation for the

belief in present and future prosperity. It is announced that many of the mills and factories will substitute a very short stop for repairs for the usual summer shut-down this year, on account of pressing orders and no surplus stock in sight. No trouble seems to be anticipated over the wage scale. The Amalgamated Association prices will be accepted without much objection by the miner establishments; the non-union mill will pay good wages, but will not recognize the Amalgamated Association, together with the conservative course of other workmen leaves little cause for hesitation on the part of the employers. For this reason wage negotiations are not expected to occupy more time than will be required to make absolutely necessary repairs, and work may be practically continued without interruption. The extraordinary movement in the iron and steel market becomes more extraordinary every day.

Sales have been on an enormous scale, and would be yet, but mills and furnaces are so full of work that in very many cases it is impossible to persuade them to name a price for anything additional. Many thousands of tons of orders have been declined within a few days, maker's having refused to increase their responsibilities, even though the price seems very attractive. One of our large furnace owners, whose weekly sales for many weeks average from 10,000 to 14,000 tons, informed us that for the present they were out of the market. Stocks of pig iron have largely decreased during the last month, and although some increase in production will be made during the current month, it is not likely to equal the increased consumption; so that for a time at all events we may be confronted with a further shortage in the supply. Prices are very irregular; the first thing is to find a seller, the prices being easily arranged.

Steel Rails.—The strongest feature is in the increased demand. Sales to date since January 1 are fully equal to the total deliveries during 1894, with prospects of heavy sales in the near future. The price is said to be $24 at mills at new engagements, an advance of $2 per ton, and it looks as though there would be all the business that could be handled.

Southern Iron.—A further advance is announced. Alabama, June 15.—The Tennessee Coal, Iron and Railroad Company declared an advance of 50c. a ton on all grades of iron, being the fifth advance made within the past three months. The Tennessee company has sold ahead for two or three months, and the advance does not affect orders now being filled. Business in the south is daily improving; almost every day a mill or a mine resumes. Nothing but silver money is paid out from stores or banks except in the mill men cases.

The Latest.—Firmness for all description of iron and steel continues to rule, with a further advance on certain kinds. Bessemer pig sold at $12.75@ $12.80; steel billets reached $20 00; steel wire rods advanced $1.00 to $1.40; skelp iron and steel firm; steel rails reported advanced to $24; makers refuse to affirm or deny; old rails further advanced; summer and fall outlook very rosy.

Tons.		Cash.
	COKE SMELTED LAKE AND NATIVE ORE.	
10,000	Bessemer, July to Jan	$12.65
7,500	Bessemer, July to Sept.	12.65
6,000	Bessemer, July to Dec., Valley	11.80
5,000	Bessemer, Sept., Oct.	12.60
5,000	Bessemer, June, July	12.50
3,000	Bessemer, July, Aug., Valley	12.00
3,000	Bessemer, July, Aug., Sept., Valley	11.90
2,000	Bessemer, July to Dec., Valley	11.90
2,000	Gray Forge, June, July	10.50
1,200	Off Bessemer, July, Aug.	11.60
1,000	Bessemer, Aug., Sept., Oct., Valley	12.00
1,000	Gray Forge, Prompt	10.50
500	Bessemer, July, Aug., Valley	11.90
500	Off Bessemer, June, July	11.65
500	Bessemer, July, Aug.	12.75
300	Gray Forge, June	10.50
	CHARCOAL.	
300	Cold Blast	$23.00
150	No. 2 Foundry	16.00
100	Cold Blast	23.00
75	No. 2 Foundry	16.00
50	Cold Blast	23 00
50	Cold Blast	23.00
	BLOOMS, BILLETS AND SLABS.	
6,000	Billets, July and August, at mill, Valley	$19 00
3,000	Billets, June and July, at mill	18.85
2,500	Billets, July and August, at mill	18.80
1,000	Billets, August and Sept., at mill	19,00
1,000	Billets, August and Sept., at mill	19.25
1,000	Billets, July and August, at mill	19.30
1,000	Billets, June	20.00
	SKELP IRON.	
800	Wide gr'v'd	$1.37½ 4 m.
550	Wide gr'v'd	1.35 4 m.
500	Sheared	1.50 4 m.
	SKELP STEEL.	
850	Sheared	$1.37½ 4 m.
800	Wide gr'vd	1.27½ 4 m.
500	Nar w gr'vd	1.27½ 4 m.
	STEEL WIRE RODS.	
1,000	5-gage, at mill	$26.40
	SHEET BARS.	
800,	at mill	$22.80
200,	at mill	23.00
	MUCK BARS.	
600	Neutral, July	$19.50
	BLOOMS, BILLETS AND BAR ENDS.	
1,500	Blooms and Billet Ends	$13.00
	FERRO-MANGANESE.	
50	80%	$50.50
	SPELTER.	
100	Spelter	$3.65
	OLD RAILS.	
1,000	Iron Rails Valley	$15.00
500	Steel Rails, short lengths	12.50
500	Steel Rails	12.00
	SCRAP MATERIAL.	
1,000	Heavy Steel Scrap, gross	$12.25
500	R.R. Mixed Steel, gross	12.50
500	Cut Pipe, net	10.00
500	Uncut Pipe, net	9.25
500	Tank Iron Sheared net	12.00
300	Boiler Steel Scrap gross	13.50
200	No. 1 Wro't Scrap, net	11.25

METAL MARKET.

NEW YORK, Friday Evening, June 21, 1895.

Gold and Silver.

Prices of Silver per Ounce Troy.

June.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.	June.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.
15	4.89¼	30½	66¾	.516	19	4.89¼	30⅛	66¾	.517
17	4.89¼	30 7/16	66⅝	.515	20	4.89¼	30⅜	66⅝	.515
18	4.89¼	30½	66¾	.516	21	4.89¼	30⅜	66½	.514

Owing to delay in developments in regard to Chinese Loan buyers for a rise have come to a halt. The market has been supported by Indian purchasers, but orders have not been large enough to prevent a slight decline, and the market closes at the lowest point reached in several weeks.

The United States Assay Office in New York reports the total receipts of silver at 167,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, May, 1895, and years 1895 and 1894 in coin and bullion:

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
May.	$4'6 756	$1,860,926	$5,727,041	$742,815	E. $540,026
1895..	33,931,482	23,894,217	17,981,556	3,339,382	E. 24,679,439
1894..	47,639,959	16,514,425	20,332,271	3,808,716	E. 53,621,089

Imports and exports of gold and silver in ores for the five months to May 31st are reported as below:

	Gold.		Silver.	
	1894.	1895.	1894.	1895.
Imports	$245,663	$622,444	$2,762,916	$3,920,228
Exports	10,042	26,355	168,275	.....
Excess, Imports	$235,621	$596,089	$2,594,639	$3,920.228

These imports and exports in ores are not included in the table of exports and imports of coin and bullion given above.

The following statement shows the net imports and exports for the five months to May 31st this year, including the metal in ores as well as coin and bullion:

Gold	$33,957,837	$24,516,661	E $9,441,176
Silver	21,901,784	3,339,382	E. 18,562,402
Total	$55,859,621	$27,856,043	$18,003,578

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending June 21st, 1895, and for years from January 1st, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$12,525	$30,876	$696 529	$19,541	E. $658,637
1895..	32,531,117	19,825,187	16,373,170	802,182	E. 28,279,648
1894..	62,8 3,944	9,488,783	18,104,612	775,887	E. 70,663,886
1893	68,872,845	5,956,154	15,123,210	1,251,578	E. 76,785,323
1892..	39,699,129	6,262,133	11,031,206	790,821	E. 43,677,381

The gold exported for the week went to the West Indies; the silver to London, except $49,600 which went to Ecuador. The gold imported came from the West Indies; the silver from Central America.

FINANCIAL NOTES OF THE WEEK.

The situation in general business continues the same as that we have had to report for several weeks past, and there is no marked change. The most notable feature is found in the reports which reach us from all hands of increases in wages. In some cases these are granted to avoid labor troubles; but in most they are warranted by rising prices and greater demand. Many manufacturers see that it is better policy to hold their men by voluntarily making concessions, and thus avoiding a contest later over demands for greater advances. The summer period, when a slackening of business activity is always to be expected, is almost upon us, but does not seem to affect the general growth and activity.

Speculation continues active, and is for the time directed more to the great staples, grain and the metals, than to stocks. Here wheat and cotton have attracted most attention, but in Europe there is a very active movement in copper, and speculative buying of that and other metals is large.

There has been no marked movement in the silver speculation, and buying for the moment is light; but the price is fairly supported. In the silver market interest just now centers in the Russian-Chinese loan, which has been confirmed. There seems to be considerable feeling in London and Berlin over the agreement under which the loan is to be financed by Paris bankers entirely.

Speculation in American securities abroad is quiet for the time, owing partly to the concurrence of the settlement period and several holidays in London, and to the ship canal festivities in Germany, which have caused a practical suspension of business in Berlin this week. A steady demand for American stocks of the better class has evidently set in, however, the results of which will be more apparent later than they are just at present.

Foreign exchange continues to rule high in New York, owing chiefly to an unusual scarcity of grain bills and in part also to some demand for money abroad which has led to transfers of balances to points where better interest can be secured. Money is very abundant in London, but there has been a rise in interest rates on nearly all the continental exchanges. Here the Syndicate has met all demands for exchanges, and there have been no gold exports.

The currency discussion continues active, but without any marked incidents or new developments during the week.

The Syndicate is again making payments of gold into the Treasury under its contract, and a shipment of $1,250,000 from London is due in New York to-day. We note from our San Francisco exchange the arrival at that port of $500,000 in gold coin from Australia. It is sent on London account to meet payments on wheat bought in California for export to Great Britain.

The statement of the United States Treasury on June 20th shows balances in excess of outstanding certificates as below, comparison being made with the corresponding day of last week:

	June 13.	June 20.	Changes.
Gold	$99,589,446	$99 727 478	I. $138,032
Silver	26,860,535	27,363,220	I. 502,685
Legal tenders	31,095,231	28,272,927	D. 2,822,304
Treasury notes, etc.	29,545,022	29,508,559	D. 36,463
Total	$187,090,234	$184,872,184	D. $2,218,050

Government deposits with national banks on the same date amounted to $15,494,368, a decrease of $423,160 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $147,082,280. Against these are held in the Treasury 23,211,568 coined standard silver dollars, and silver bullion purchased at a cost of $123,87 ,712, making a total of $147,082,280.

The receipts of the United States Treasury for the week ending June 8th for three years past were as follows:

	1893.	1894.	1895.
Customs	$3,086,177	$1,943,298	$2,618,208
Internal revenue	2,635,476	3,237,914	2,320,883
Miscellaneous	267.492	203,817	496,125
Total	$5,989,145	$5,385,029	$5,435,216

The receipts for the week this year show a decrease of $917,604, from those of the preceding week this year.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending June 15th, gives the following totals, comparisons being made with the corresponding weeks in 1894 and 1893

	1893.	1894.	1895.
Loans and discounts	$410,700,400	$465,733,600	$507,925,500
Deposits	406,536,400	570,483,700	568,816,000
Circulation	5,650,500	9,823,000	13,246,500
Specie	68,218,400	99,389,600	66,269 300
Legal tenders	42,192,500	119,107,900	113,893,600
Total reserve	$110,410.900	$218 997,500	$180,162,900
Legal requirement	101,634.100	142,620,925	142,204,000
Surplus reserve	$8,776,800	$76,366,575	$37,958,900

The changes for the week this year were increases of $4,487,900 in loans, $3,510,300 in legal tenders, $2,819,200 in deposits and $13,000 in circulation; decreases of $1,709,000 in surplus reserve, and $4,514,500 in gold.

Shipments of specie and bullion by sea from San Francisco during the month of May amounted to $1,498,950, of this amount there were in silver bars $771,548, Mexican dollars $683,883, other silver coin $6,201, gold $37,318. The destination of the shipments was as follows: To Hongkong, $780,931 silver and $8,113 gold; to Shanghai, $661,800 silver; to Japan $141,000 silver; to New York $29,205 gold and $4,901 silver. In addition to the shipments on mercantile account the United States mint in San Francisco farwarded $150,000 in silver coin on government account.

The shipments of specie from San Francisco for the five months ending May 31st compared as follows:

	1894.	1895.
Silver bars	$2,311,905	$4,161,848
Mexican dollars	1,750,552	2,083,773
South American dollars	132,100	5,298
Gold coin	9,050,700	3,668,782
Silver coin	311,800	250,443
Gold dust	200	270
Total	$13,557,257	$10,170,414

The destinations of shipments this year were as follows: Hong Kong, $3,264,913: Shanghai, $2,533,160; Japan, $224,374; Honolulu, $50,000; Samoa, $4,000; Central America, $268,298; Mexico, $396; New York, $3,825,079.

Some weeks ago a paragraph in this column called attention to the continous modern tendency to in-

crease government expenditure. In an address delivered recently, Sir William Harcourt, the British Chancellor of the Exchequer, dwelt at length on the same point. The tendency of all modern governments, he said, is continually to increase expenditure, and the work of the modern finance minister is not to reduce the amount of his payments, but to devise new taxes to meet the requirements. It is the same in popular as in despotic governments; it is always easy to get votes for a new outlay. This growing and universal tendency has far-reaching results; as we have before remarked, has no inconsiderable part in causing the constant recurrence of business disturbances.

The Bureau of Statistics of the Treasury Department makes the following statement of the imports and exports of merchandise in the United States for May and the eleven months of the fiscal year from July 1st to May 31st:

	May.		Eleven months.	
	1894.	1895.	1893-94.	1894-95.
Exports.	$66,997,684	$61,260,936	$834,404,722	$752,564,092
Imports.	56,160,352	66,023,000	596,496,207	670,235,964
Exc..E.	$4,837,332	I. $1,762,064	E. $237,908,515	E. $82,328,128

The tables showing the movement of gold and silver will be found at the head of this column. For the eleven months gold exports exceeded the imports by $31,076,407, and silver by $26,362,718; so that the total excess of exports—merchandise, gold and silver—was $139,767,273.

The Bank of England on Thursday, June 20th, reported its gold holdings at £38,147,831, showing a decrease of £730,726 as compared with the corresponding date last year. There was a net increase in gold of £750,103, due chiefly to heavy imports from South Africa. The Bank's proportion of reserve to liability was 62·97%, against 62·85% last week, and 70·46% a year ago.

The Bank of France, on Thursday, June 20th, reported its total specie holding at 2,045,710,000 fr. gold and 1,255,607,000 fr. silver, an increase of 260,781,857 fr. gold and a decrease of 22,402,674 fr. silver, as compared with the corresponding date last year. Changes for the week this year were increases of 660,000 fr. gold and 3,200,000 fr. silver.

For convenience of comparison, we have grouped together in the table below the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$66,269,300
1894	.....	.....	99 389,600
Bank of England	$190,739,105	.....	190,739,105
1894	194,392,785	.....	194,392,785
Bank of France	409,142,000	$251,121,400	660,263,400
1894	376,985,629	255,613,935	632,599,564
Imp. Bank of Germany	.....	.....	269,200,000
1894	.....	.....	235,940,000
Austro-Hungarian Bank	96,188,000	67,606,000	163 794,800
1894	51,580,000	81,719,000	133,299,000
Netherlands Bank	21,470,000	35,318,000	56,788,000
1894	22,585,000	35,196,000	57,781,000
Belgian National Bank	.....	.....	21,345,000
1894	.....	.....	22,448,000
Bank of Spain	40,021,000	61,992,000	102,013,000
1894	39,590,000	43,995,000	83,585,000
Bank of Italy	60,015,000	10,270,000	70,835,000
1894	.....	.....	.....
Imp. Bank of Russia	274,950,000	34,865,000	309,815,000
1894	.....	.....	.....

The return for the Associated Banks of New York is of date June 15th; all the others are of date June 20th, except the Bank of Italy, whose return is dated May 20th, and the Bank of Russia, May 4th-16th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports its gold only, not considering silver at all. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year to June 6th are reported by Messrs. Pixley & Abell's circular as below:

	1894.	1895.	Changes.
India	£2,417,265	£1,662,480	D. £754,785
China	1,660,755	1,084,567	D. 576,188
The Straits	577,702	294,735	D. 282,967
Japan	241,800	105,000	D. 136,800
Total	£4,897,522	£3,146,782	D. £1,750,740

Receipts of silver for the week were £150,500 in bar silver and £5,780 in Mexican dollars from New York and £55,000 in Mexican dollars from Vera Cruz; a total of £211,280. Shipments were £35,100 in bar silver to Bombay.

Indian exchange continues strong and the usual amount of Council bills were offered this week and taken at small fractional rise, the average standing at about 13 3/8@13 7/16 per rupee. A slackening of the demand on Chinese account is offset by a temporary stringency in the Indian money market, where all the banks have raised their discount rates. Gold shipments from London to India continue steadily, though not to an amount large enough to affect the exchange rates seriously.

A St. Petersburg despatch says that the Imperial Russian Bank announces that all its establishments and branches are prepared to buy, and that its establishments in St. Petersburg, Moscow and Warsaw will also sell, Russian gold coins at a rate which will be publicly advertised by notice put up at the said establishments. Every change which the rate thus advertised experiences will take effect only on the day following the notification thereof. Until further notice the rate for the purchase and sale of gold coins will be as follows: Imperials of new issue, 14 roubles 80 kopecks; half imperials of new issue, 7 roubles 40 kopecks; imperials of old issue, 15 roubles 24 kopecks; half imperials of old issue, 7 roubles 62 kopecks; old Tchewontzy ducats, 4 roubles 57 kopecks. The bank's establishments will also, on demand, effect the payment in gold coin at the advertised price of amounts owing in credit roubles.

The value of the foreign trade of China for five years past has been as below; the values are stated in Haikwan taels, the average exchange value of the tael being also given in the table:

	Imports.	Exports.	Value of tael.
1894	T. 161,102,900	T. 128,104,500	$0.77
1893	151,382,100	116,632,500	0 95
1892	125,101,200	102,583,500	1.05
1891	134,003,900	100,947,816	1.18
1890	127,098,900	87,144,300	1.25

In the imports a marked growth is to be noted in those of cotton goods and metals. The increase in exports is mainly in raw cotton and wool.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$0.53¾	$0.53¾
Peruvian soles and Chilean pesos	.50	.52
Victoria sovereigns	4.88	4.91
Twenty francs	3.89	3.92
Twenty marks	4.80	4.85
Spanish 25 peseta	4.78	4.85

Other Metals.

All the metal markets have been rather dull during the past week, and transactions were few and far between.

Copper.—The market is firm, but exceedingly dull, and any pressure to sell would tend to lower values. Fortunately all the larger producers are well sold out, and few as the orders are which come into the market, they are sufficient to keep up the quotations, which are Lake copper 10¾; electrolytic is 10½ and casting copper 10@10¼. Some sales of furnace material for home trade are reported at very high figures. Besides, there has been a very active demand for export.

Cable advices from London report that the statistics for the first half of June increased 2,000 tons.

The London market for G. M. B's. opened rather dull, and values have given way somewhat. We quote £42 7s. 6d.@£42 10s. for spot, and £42 15s @ £42 17s. 6d. for three months prompt.

Fine copper appears to be just as scarce in Europe as here, and full prices are being paid for it. For refined and manufactured we quote: English tough, £45@£45 10s.; best selected, £45 15s.@£46.5s.; strong sheets, £52 10s.@£52; India sheets, £49 10s.@£50; yellow metal, 4⅝d.

There have been rumors for some time past that the Anaconda copper mines of Butte, Mont., are about to be sold to a European syndicate. The company has been reorganized with a capital stock of $30,000,000 (it was previous to this $12,500,000), and is owned chiefly, if not exclusively, by J. B. Haggin, the Hearst estate and Marcus Daly.

The rumor of the sale of the property in Europe is at least premature. Some years ago negotiations were made with the Rothschilds for the sale of the Anaconda mine at $25,000,000, but now it is understood the Chambers syndicate mines are included in the new company that has been offered at $30,000,000, with a liberal commission. The vendors, it is said, offer to guarantee that the profits will amount to not less than $3,000,000, or 10% a year for three years.

European statistics of copper on June 15th are reported as follows: Estimated stocks in England and France, 51,540 tons; an increase of 1,600 tons over June 1st. In addition, there are reported afloat from Chile 3,500 tons and from Australia 1,100 tons. For the half month ending June 15th, the total supplies received in England were 6,600 tons, of which 2,400 tons came from the United States. Deliveries for the half month are estimated at 4,700 tons.

Copper Exports.—The exports of copper from the port of New York during the week ending June 21st, 1895, as reported by the New York Metal Exchange, were as follows:

Copper:		
Liverpool—Tauric	Pigs	200 tons
Havre—La Touraine	Ingots	200 "
Genoa—Italia	Plates	50 "
Rotterdam—Obdam	Plates	15 "
Liverpool—Britannic	Wire rods	48 "
Antwerp—Noordland	Plates	10 "
Bordeaux—Chateau Lafitte	Bars	200 "
" "	Pigs	100 "
" "	Ingots	20 "
Swanzea—Wells City	Pigs	50 "
Rotterdam—Edam	Bars	50 "
Genoa—Pocahontas	Ingots	25 "
Hamburg—Phoenecia	Ingots	10 "
Rotterdam—Obdam	Bars	100 "
" "	Pigs	100 "
" "	Wire Rods	100 "
" "	Plates	135 "
" "	Ingots	100 "
Glasgow—Anchoria	Ingots	10 "
Liverpool—Majestic	Wire Rods	17 "

Exports of copper from Baltimore for the week ending June 21st are reported by our special correspondent as follows:

Copper:		
Antwerp—Norse King	10,153 bars	1,011,130 lbs.
" "	6,731 ingots	112,000 "
Hamburg—Russia	1,256 bars	201,826 "
" "	110 cakes	83,091 "
Matte:		
Liverpool—Queensmore		1,101,267 lbs.

This is a total of 1,435 long tons of copper from New York, and of 629 tons of copper and 492 tons of matte from Baltimore; making in all a total of 2,064 tons of copper and 492 tons of matte for the week.

Tin.—There is not much of interest to report. A fair hand-to-mouth business is going on, but with prices somewhat higher, and the large stocks on hand, both in Europe and here, buyers are on their guard. We quote for spot and June, 14c., and for forward delivery, 13.90@14c.

The London market opened at £62 5s. for spot, and declined to £62, but closes somewhat firm at £62 15s@£63 for spot, and £63 2s. 6d@£63 7s. 6d. for three months prompt.

The official statement of exports of tin from the Straits Settlements for the quarter ending March 31st shows a total of 11,539 tons, a decrease of 2,132 tons from last year. The shipments from the Straits for the quarter this year included 5,243 tons to Great Britan, 4,226 tons to Europe, 1,150 tons to the United States, 5,062 tons to India, and 358 tons to China.

The public sale of Billiton tin held at Batavia, Java, on June 19th realized an average price of 37½ guilders. This price is equal to £62 15s. per long ton c. i. f. Holland. At the previous sale in April an average of 38⅜ guilders was realized.

Lead is rather dull and prices are somewhat easier. A few contracts have been made at 3·25, but the quantities were not large, as few sellers are willing to accept this figure. On the other hand, buyers seem not to be in a hurry. We quote 3·25@3·27½.

The foreign market shows a decline, Spanish lead being quoted £10 5s.@£10 6s. 3d., and English lead 2s. 6d. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is slightly easier and there are plenty of free sellers on the market for all brands at 3·10. The best bid we can name for round lots is 3·07½. Apparently buyers look for a reaction and lower prices, and consequently they are just now taking hold very sparingly.

Spelter has ruled somewhat irregularly, but on the whole values are fully maintained, and we quote 3·65@3·70.

The English market is steady, good ordinaries being quoted £15 7s. 6d., and specials £15 10s.

Antimony is unchanged.

Quotations for ordinary sorts are as follows: Cookson's, 8c.; Halett's, 7@7⅛c.; French E. B., 7¾c.; U. S. French Star, 7½c.; Japanese, 7c.

Aluminum.—The standing quotations, according to producer's price list, are given below, the three prices named being respectively for small lots, for orders of 100 lbs. or over, and for orders of one ton or over: No. 1 metal, over 98% pure, in ingots ready for rolling, etc., 60c., 58c. and 55c. per lb. No. 1 metal, in ingots for remelting, 55c., 52c. and 50c. per lb. No. 2 metal, over 94%, but less than 98%, in ingots for remelting, 53c., 50c. and 48c. per lb. Rolled sheets, No. 1 metal, 80c.@$1.40 per lb., according to size and thickness. Wire, $1@$2.50 per lb., according to gauge. Tubes, from 14c.@$3.15 per linear foot, according to thickness and diameter. Castings, from 90c. per lb. up, according to pattern and size of order.

Abroad the price is fixed by the Neuhausen Company, which quotes 5 fr. per kilo.—equivalent to 45c. per lb.—at works in Switzerland for small orders; a discount is made on large sales. Quotations in Paris, for large orders, are 5 fr. per kilo. for ingots; 6 fr. per kilo. and upwards for sheets; 10 fr. per kilo for wire, 0·5 mm. and over; 15 fr. per kilo. and upwards for sheets. For small orders the quotations are 6·50@7 fr. per kilo.

Bismuth.—Quotations are nominally $2@$2.50 per lb., according to size of order.

Magnesium.—The maker's prices are as follows, at works in Germany: 27 marks per kilo.—equivalent to $2.94 per lb.—for ingots; 26 marks per kilo. for bars; 36 marks per kilo. for powder, and 38 marks for ribbon and wire. For orders of less than 10 kilos., 1 mark per kilo. must be added for ingots or bars, and 2 marks for wire, etc.

Nickel.—In the absence of sales, quotations in New York continue nominal at 36@39c. per lb.

In London quotations are somewhat lower at 13@14d. per lb. In Paris quotations are 4·50 @5 fr. per kilo. (equivalent to 39@45c. per lb.) for pure metal; 2·50@3 fr. per kilo. for copper-nickel alloy, 50% nickel. These quotations may be considered nominal, however, and would certainly be shaded for orders of any considerable amount.

Platinum.—Quotations abroad are firm at rates equivalent to $10@$10.50 per ounce.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams; for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes 41c., 43c. and 45c. per gram. Wire and foil are 40c., 41c. and 42c. per gram. The current retail price for crucibles is 50c. per gram.

Phosphorus.—Quotations current are 50@52½c. per lb., New York or Philadelphia.

Quicksilver.—Quotations are unchanged at $41 per flask New York. San Francisco prices are $40@$40.50 per flask. The London rates also continue unchanged at £7 10s., with £7 8s.@£7 8s. 6d. quoted from second hands.

The receipts of quicksilver at San Francisco in May were 1,756 flasks and for the five months ending May 31st there were 10,900 flasks, a decrease of 780 flasks from the corresponding period last year. Exports by sea for May were 1,315 flasks, and for the five months 6,574 flasks, showing a decrease of 1,543 flasks from last year. The shipments this year included 29 flasks to British Columbia, 201 to Central America, 1,844 to Mexico and 4,500 to New York. Rail shipments overland in April were 1,300 flasks, and for the four months ending April 30th they were 4,951 flasks, showing an increase of 1,019 flasks over 1894. The overland shipments for May have not yet been made public. The general decrease in shipments from California is chiefly due to the increased demand from the mines, leaving a smaller surplus for export.

Sodium.—In England the makers price is equal to 90@96c. per lb., according to quantity. Occasional sales only are reported here, usually on private terms.

Tungsten.—The following quotations for this metal and its compounds are furnished us by the manufacturers: Tungsten metal (powder) 98% pure, 70c. per lb.; tungstic acid, 45c. per lb.; tungsten salt (tungstate of soda). 30c. per lb. These quotations are for large lots. For ferro-tungsten the quotations for ton lots of the various grades are as follows: 60% metal, 60c. per lb.; 50% alloy, 45c. per lb.; 37% alloy, 33c. per lb.

Imports and Exports of Metals.—Exports of metals (other than copper) from the port of New York for the week ending June 13th are reported by the New York Metal Exchange as follows: 15 tons brass scrap, 18 tons hoop iron, 5 tons old metal, 9 tons old brass to Liverpool; 15 tons zinc skimmings to Bristol; 7 tons copper wire to London; 6 tons sulphate of copper, 18 tons tin scrap to Rotterdam; 35 tons scrap iron, 43 tons horse shoes, 72 tons tires, 23 tons nails to Shanghai; 110 tons iron pipe to Glasgow; 5 tons nickel to Hull.

Imports of metals into this port for the week ending June 13th are reported by the New York Metal Exchange as follows: 510 tons, 32 tons, duty paid, type metal, 80 casks antimony from London; 10 tons English tin from Liverpool; 100 tons Straits tin from Holland; 25 tons Straits tin from Bremen; 50 tons, duty paid, Silesian spelter from Stettin; 211 cases, 30 tons, antimony from Japan; 42,163 boxes tinplates from Swansea and Bristol; 1,021 boxes tinplates from Liverpool and London.

Imports into the port of Baltimore for the week ending June 15th were: 59,662 boxes tinplates from the United Kingdom; 50 tons tin from London; 3,125 tons iron ore from Cuba.

Arrivals at the port of Philadelphia for the week ending June 15th were: 19,680 boxes tinplates from the United Kingdom; 25 tons tin and 30 casks antimony from London; 125 tons ferro manganese from Liverpool; 2,000 tons copper ore from Spain; 3,150 tons iron ore from Cuba.

Shipments from Baltimore for the week ending June 21st are reported by our special correspondent as follows: 105 bbls., 58,875 lbs, sulphate of copper to Antwerp.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, June 21.

Heavy Chemicals.—This market continues quiet. There is a fair spot demand, and also an improved inquiry for future delivery, but the latter does not result in much actual business. Quotations this week are as follows: Caustic soda, 60%, 2@2·10c. for spot, other tests, futures, 1·95@2·10c. Carbonated soda ash 48%, is ·95@1c.; 58%, ·90@·95c.; according to quantity and delivery. Alkali is ·90@1c., according to test. Bicarb. is 1·80@2c. for spot. Bleaching powder is $1.82½@$1.85. Sal soda, 62½@65c.

Acids.—The improved business which we noted in our last issue has continued. There is an increased consumption which has stiffened prices somewhat, although it has not advanced them appreciably. We quote per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acids, acetic, $1.40@$1.65 (in bar rels). Muriatic, 18°, 75@85c.; 20°, 90c.@$1.15; nitric, 36°, $3.25@$4; 40°, $4@$4.50; 42°, $4.50@$5.25. Mixed acids according to mixture; oxalic, $7@$7.50. Sulphuric, 60°, 60@70c.; 66°, 70@85c. Blue vitriol is quoted at $4@$4.25.

Brimstone.—The market for Sicilian brimstone continues quiet. Quotations for best unmixed seconds are as follows: On the spot, $16 50; future shipments, and near by arrivals, $16@$16.50. Best thirds are 50c.@75c. less.

Fertilizing Chemicals.—The market for fertilizers continues very quiet, though owing to the limited supply of ammoniate, prices rule steady. We quote this week: Sulphate of ammonia, gas liquor, spot, $2.95; shipments, $2.85@$2 90; bone, $2.75@$2.80. Dried blood, high grade, $1.95@$2; low grade, $1.75@$1.80 per unit. Azotine, $1.90. Concentrated phosphate (30% available phosphoric acid), 70@71½c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 90c. per unit. Acidulated, fish scrap, $12, and dried scrap with few or no sales, nominally $21 f. o. b. fish factory. Tankage, high grade, $19@$20; low grade, $18@$19. Bone tankage, $21; ground bone, $19@$20. Bone meal, $21@$22.

In lots of 50 tons on contracts we quote, per 100 lbs: Double manure salts, 48-53% (basis of 48%): New York, Boston and Montreal, $1.10; Philadelphia and Norfolk, $1.12½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.15. Sulphate of potash, 90%, and minimum, 96% respectively (basis of 90%): New York, Boston and Montreal, $2.08@$2.09; Philadelphia and Norfolk, $2.10½, Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.13.

Muriate of Potash.—Quotations for lots of 50 tons are as follows: 80-85% and minimum 95%, respectively (basis of 80%): New York, Boston and Montreal, $1.78; Philadelphia and Norfolk, $1.80½; Charleston Savannah, Wilmington, N. C., and New Orleans, $1.83.

Kainit.—Prices for kainit (minimum 23%) are as follows for invoice and actual weights respectively, New York, Boston and Philadelphia, $8.80; Norfolk, $9.15; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9 55.

Nitrate of Soda.—Quotations are $1.75@$1.80 both for spot and for forward delivery.

Liverpool. June 11.

(Special Correspondence of Joseph P. Brunner & Co.)

Trade has slackened off in chemicals, as usual about this season of the year, but prices are firmly maintained all round. Soda ash is quiet at late rates. For tierces we quote spot range as follows: Leblanc ash, 48%, £3 10s. @£3 15s. per ton; 58%, £3 15s. @£4 per ton; net cash. Ammonia ash, 48%, £3@£3 5s. per ton; 58%, £3 5s.@£3 10s. per ton, net cash. Bags, 5s. per ton less than tierces. Soda crystals are in fair demand, at £2 2s. 6d.@£2 5s. per ton, less 5% for barrels.

Caustic soda is selling in a moderate way and quotations are well maintained. We quote: 60%, £6 7s. 6d.@£6 10s. per ton; 70%, £7 7s. 6d.@£7 10s per ton, 74%. £8 7s. 6d @£8 10s. per ton; 76%, £9 5s.@£9 10s. per ton, net cash.

Bleaching powder is in moderate supply and outside makes are scarce. For hardwood packages quotations range from £7@£7 10s. per ton, net cash, according to export market. Chlorate of potash is less active, but makers are very firm at 5d. per lb., while a little is to be had from second hands at 4¾d. Bicarb soda is not active, but a fair amount of business is passing at £6 15s. per ton, less 2½% for the best quality in one cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is a shade off at £10 5s @£10 10s. per ton, less 2½% for good gray, 24 and 25%, in double bags f. o. b. here, according to quality. Nitrate of soda is quoted at from £8 7s. 6d.@£8 10s. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality. Carb. ammonia, lump, 3½d. per lb; powered, 3¾d. per lb., less 2½%.

MINING STOCKS.

Complete quotations will be found on pages 598 and 599 of mining stocks listed and dealt in at:

New York.	Denver, Colo.	Salt Lake, Utah.
Boston.	Aspen, Colo.	London, England.
Baltimore.	Colorado Springs.	Paris, France.
Philadelphia.	Duluth, Minn.	Mexico.
San Francisco.	Helena, Mont.	Shanghai, China.
N. Y. Coal Stocks.	N. Y. Industrials.	Valparaiso, Chile.

NEW YORK, Friday Evening, June 21.

The past week in the mining stock market has been one of the dullest for some time. The Comstocks have been exceedingly quiet. The most active was Comstock Tunnel stock, of which 2,600 shares changed hands at 9@10c. Consolidated California & Virginia shows sales of but 200 shares at $2.60@$2.70. Other sales were: 100 shares of Gould & Curry, at 35c., 200 shares of Hale & Norcross, at 90c.@$1.00; 200 shares of Mexican, at 60@69c.; 200 shares of Ophir, at $1.40@$1.50; and 200 shares of Yellow Jacket, at 45@50c.

The only California stock traded in during the week was Standard Consolidated, of which there was a solitary sale of 100 shares at $2.60.

The Colorado shares attracted the most attention this week. Chrysolite shows sales of 600 shares at 17@18c. Of American Flag 500 shares were sold at 4c There was a good demand for Iron Silver and 1,200 shares were traded in at 35@37c. Isabella returns to the Exchange this week with sales of 400 shares at 20@21c. Lacrosse was the most active in point of numbers, 3,300 shares being sold at 9@10c. Only 200 shares of Leadville Consolidated was sold this week at 14c.

Of the Utah stocks we note sales of 500 shares of Horn Silver at $2.50@$2.60 and 50 shares of Ontario at $9.

There was a sale of 100 shares of Kingston & Pemboke at 50c.

A despatch from Rico, Colo., dated June 21st, says that the trouble between the miners of the Rico-Aspen and Enterprise mines continues. It began when the men were drifting on a vein, and the miners from both mines met on disputed territory. The Rico-Aspen men have driven the others out. The Enterprise men exploded powder and tried to smoke the others out. This has been going on for about 36 hours. Several men were overcome by smoke, and one was badly cut about the face. Guards have been placed on duty, but fighting with explosives is continued. The Rico-Aspen men are taking out the ore and the Enterprise men are smoking them. The ore in the disputed territory is said to be worth $300 a ton.

Boston. June 20.

The market for copper shares has ruled extremely dull the past week, and prices have tended downward. The occurrence of a holiday is accountable in part for the dullness, but there is evidently a disposition to hold up. There is no pressure to sell stocks, however, as holders are confident of a better market later on, and willing to wait.

Boston & Montana opened at $53⅞, and declined gradually to $51¼, the latter price being reached to-day; there was a rally of $¼ in last sales to $51½. Butte & Boston declined $1, from $15¼ to $14¼, which was the last sale. The dealings in both these stocks have been very light, not over 5,000 shares for the week.

Calumet & Hecla advanced to $295, a gain of $3. Tamarack sold at $138, and declined later to $137¼. The rights are now off, the best sale being on June 15th at $3½. Quincy sold at $119½, same as last week, and the scrip at $64. Atlantic declined from $17 to $16 on small sales. Osceola has declared a dividend of $1 per share. The stock was heavy and declined from $28½ to $26, but on the above announcement it rallied and sold to-day at $28 again. Kearsage was very weak, and declined $1½ to $13¼. Tamarack, Jr., was strong, and advanced from $19¼ to $19⅞ on sale of 50 shares only. Wolverine was neglected, only 10 shares sold at $6½. Centennial was firm at $1, and 1,100 shares were sold at that price. Allouez sold at 87½c., and later at 75c.

Napa quicksilver advanced from $6¾ to $7.

The market closed dull and without special feature.

Colorado Springs.

BY TELEGRAPH.

Messrs. Gardner & Co. wire us the closing quotations for the week ending June 20th as follows:

Name of Company.	14	15	17	18	19	20
Anaconda.	.39½	.39	.39½	.40	.40	.40
Argentum-Juniata	1.10	1.00	1.00	1.00	1.00	1.00
Isabella	.17½	...	.18	.18½	.20	2.20
Mollie Gibson	.94	...	.94	.94	.90	.89
Portland	.71	.69	.69	.70	.71	.71
Union	.14¼	.14⅝	.14¾	.14¾	.14	.14¼

Salt Lake City, Utah. June 15.

(Special report of James A. Pollock.)

The mining share market was narrow this week with slight recessions all along the line, but toward the close it showed a steadying tendency. Just at present the market appears to be a waiting one, and what the immediate movement may be is rather difficult to predict. The accustomed midsummer dulness is coming on, but I believe this familiar condition will be counteracted this year by the general expansion of business now manifest in all departments of trade. This and other causes must inevitably create renewed activity in stocks.

Ajax continues to make shipments of high grade ore. With this property relieved from the incubus of litigation, it could be safely suggested as an excellent investment. Shares were 20c. bid and 40c. asked. Alliance was quiet, and did not move during the week. Anchor was in fair demand and brought out a few shares. I understand it is the intention of the company to move the mill to a point nearer the mine so as to reduce the expense of hauling ore. There seems to be a studied effort to boom Bogan shares. Bullion-Beck advanced to $9 in the bidding and no stock offered under $10. The mine is making a heavy and profitable production. Centennial-Eureka at $48 bid, at $55 asked is steady. The regular monthly dividend is payable to-day. Comstock slumped off on the cessation of buying orders and was offered down to 50c. at the close and sold at 42½c., with 40c. bid. Dalton was offered at 3c. Daly sold at $6.75 and was offered at this price at the close, with $6 25 bid. Look out for a spurt in this stock. The shares are sure for a reaction directly. Daly West was inactive, with a scarcity of bids, but with not sufficient offerings to create the slightest indication of real weakness. Horn Silver was in demand at $2.60 and offered at $2.85. The quarterly dividend is due June 29th, and shares invariably show an advance just preceding dividend day. Mercur was weak the first part of the week, but steadied toward the close. The scare among stockholders in regard to the cyanide suit seems to have in a measure subsided. The present weakness may prove an illusion to those who are waiting to buy at low figures. Dividend No. 10 was paid on the 10th. Ontario was $8.50 bid and $10.25 asked. If there was any speculative spirit at all in the market the shares would show an advance, but the old-time favorite seems to have lost in prestige. Silver King declared dividend No. 7 of 25 cents a share, or $37,500, payable July 6th. This makes a total of $250,000 declared and paid. There was no activity in the stock and even the declaration of the dividend did not produce a ripple of excitement.

San Francisco. June 15.

(From Our Special Correspondent.)

The market opened rather quietly this week and on Monday and Tuesday there was a rush to sell, which made almost a break in prices; later there was some reaction, and at the close quotations are stronger but with little stock offered.

The main topic of discussion has been the Brunswick lode purchased by the Comstock companies, of which you have had full accounts. Opinions as to the result of this move differ very much, but, upon the whole, I do not think that very much is to be expected.

Closing quotations are about as follows: Consolidated California & Virginia, $2.40; Ophir, $1.25@$1.30; Hale & Norcross, 90@91c.; Sierra Nevada, 51c; Potosi, 40c.; Best & Belcher, 40c.; Savage, 34c.; Bodie Consolidated has been weak, and closes at 31@33c.

New assessments reported this week are Best & Belcher, 25c. per share; Pyramid Lake (Nevada) 5c.

A total of $98,750, in mining assessments becomes delinquent this month, of which Nevada mines call for $94,750 and California mines, $4,000.

The Belcher mine, at Salmon river, below Sawyer's Bar, in Siskiyou County, Cal., has been purchased by the Taylor Mining Company.

BY TELEGRAPH.

San Francisco, Cal., June 21.—The opening quotations to-day were as follows: Best & Belcher, 48c; Bodie, 30c.; Bulwer, 5c.; Chollar, 57c.; Consolidated California & Virginia, $2.50; Eureka Consolidated, 20c.; Gould & Curry, 30c.; Hale & Norcross, 88c.; Mexican, 58c.; Mono, 5c.; Ophir, $1.40; Savage, 36c.; Sierra Nevada, 57c.; Union Consolidated, 30c.; Yellow Jacket, 44c.

London. June 8.

During the past fortnight the mining stock market has been in a state of lethargy. The week ending June 1st contained a stock exchange holiday, two Jewish holidays and two great sporting events, and consequently the markets were deserted; while the week just concluded contained the Whitsun holidays. The settlement commences next Monday so that the holidays are continued practially all this week. It need hardly be said therefore that nothing like speculation has taken place and that prices generally have drooped. It is rather remarkable that the stock exchange has not been better attended for there is every probability of the Witwatersrand return for May being extraordinarily high, and under usual circumstances this expectation would give rise to a great movement in the market. There are, however, a number of causes for the present suspension of business. I have mentioned before that many dealers are doing everything they can to lower prices to suit themselves, by refusing the ordinary carrying over facilities; this of course keeps out irresponsible bulls who cannot pay for their stock. But during the past month another serious grievance has become accentuated to such an extent that buyers who wish to take up their stock are deterred from further buying. This is caused by the difficulty in obtaining transfer certificates for shares paid for. For some reason or other the secretaries and transfer agents of South African companies are at least two months behind in making out transfers. Whether this is on account of overwork, laziness, or some subtle bear scheme is not easily decided; but it is certainly causing so much uneasiness among genuine buyers that further buying on their part has been suspended for the time. As regards the future course of business, there is every likelihood of a quiet time during the next few months. In fact, the forward arrangements on the part of leading men for prolonged holidays, shows that the summer will be a dull time in the mining market.

In the American department it may be noted that another American mining company has decided to desert the United States for West Australia. This is the New Gold Hill Company which worked gold properties in Rowan and Stanley counties, North Carolina. This company has not been able to treat, at a profit, the refractory ore on its property. At the last general meeting it was decided to acquire a new property and accordingly West Australia was resorted to. After some negotiation terms were come to with the Hampton Plains Exploration Company to acquire some of their land near Coolgardie. A new company is to be formed called The Hampton Gold Hill Mines, Limited, with a capital of £200,000 in shares of 10s. each. The company will take over the property of the New Gold Hill Company in consideration of the issue to the liquidator of 253,474 shares of the new company credited with 8s. per share paid on each. The Hampton Plains Exploration Company in consideration of a small cash payment will grant to the new company the right to fully prospect two blocks of 25 acres each which have recently been pegged out on the estate of the Hampton Plains Estate Company. If these blocks turn out well the company will have the right to acquire them for 100,000 fully paid shares and 45,000 shares credited with 9s. paid on each. The shares to be issued to the liquidator will enable him to offer to the shareholders of the New Gold Hill Company one share in the new company, 8s. paid, for every share now held by them.

The Jackson Gold Fields Company which was formed to take over the Amador Company, has been successful in buying back the property of the company, the possession of which has been in dispute for two years. The representative in California has secured possession of the Amador Queen and the Amador, together with the mill and machinery. It is expected that work will be commenced on the Amador Queen almost immediately.

The report by Mr. S. H. Cox, of the firm of Bainbridge, Seymour & Co., on the Silver King mine, Calico, Cal., is so favorable that the necessary money to redeem the mine from its creditors has been raised, Mr. Cox's partner, Mr. Emerson Bainbridge, and the firm of Tapp & Landau having put up the £8,000 required. In all probability the mine will now be amalgamated with the adjoining American property.

A new company has been floated this week to work river gravels on the rivers Tamana and Lipi tributaries of the San Juan in the Republic of Colombia. The novelty of the thing is that a new dredge is to be employed, furnished with a special diving bell chamber, in which a man can direct the jet and suction orifices. In this way it is hoped that the many personal difficulties encountered with the divers will be avoided and the operation reduced from the level of skilled to ordinary labor.

The output of the Witwatersrand mines during the month of May was 194,580 oz., as compared with 186,323 oz. in April and 169,773 oz. in May of last year. This yield is considerably higher than any previous monthly return.

There has been lately much buying of Richmond Consolidated, the quotation in which has suddenly shot up from 7s. 6d. to £1 5s. This rise took place without the general public knowing the cause, and it was taken to mean that the company had at last secured a new property somewhere in the gold fields of the United States. It turns out, however, that the company has turned its attention to West Australia, owing to its inability after continued attempts and independent trials to find a suitable property in the United States. It appears that the company has been offered a group of five mining leases in the Coolgardie District, but as the available funds were not sufficient to secure all one lease has been been bought and the stipulation has been made that a new company is to buy the four remaining ones. This company is called the Mount Rowe Consolidated Mining Company, and the shareholders in the Richmond Company are to have the first offer of subscribing for its shares. The reports on these mining properties are most favorable. This desertion of the United States by the Richmond Company only accentuates the remarks which I made in my report last week to the effect that the time has gone by for English capital to find its way into American mines. In the case of the Richmond Company quite a hundred properties were investigated before America was abandoned. Most of the mines turned out on independent examination to be valueless, and for the remainder which were worth taking the purchase considerations were too high.

Paris. June 9.

(From our Special Correspondent.)

Each week, as I have written to you, the market broadens somewhat and the narrow line of speculation upon which the revival first began is left further and further behind. The metal stocks first engaged attention, especially those of copper, and there was also a revival of activity in the coal mining shares, and now the stocks of the metallurgical companies are exciting great attention. It is partly because there will be heavy contracts to be given out for the buildings to be erected for the great exposition of 1900. Already some preliminary orders are reported and others will by offered from time to time. There is much talk as to the companies which will get these contracts, but probably all will have a share. Some of the Belgium works want to bid, but I am not sure whether this intervention will be welcome; certainly our French iron and steel works are quite able to supply the demand.

I have mentioned this new development first, not so much because it has as yet made a very strong market, but because it is new and shows the tendency of speculation to increase. I think that the greatest activity for a time will be in the metal shares. Already zinc and lead stocks, especially the latter, have shown an increase in prices because of the growing firmness of the different metals and in spite of unfavorable circumstances. Even the shares of the Société de Metaux are more in demand.

The copper market is still somewhat excited and the stocks continue to be sold heavily. The Berlin buying of Rio Tinto is apparently over for the present; nevertheless the stock is in demand, while Tharsis and Cape Copper are also active, and Boleo—though it has suffered a slight reaction—continues to hold most of its recent advance.

One stock only continues to fall; though its fluctuations are frequent they always seem to end by leaving it a little lower; that is Nickel, and I doubt very much whether it is ever revived. The late report referred only to the financial affairs of the company, but it is whispered that practically nothing has been done at the mines in New Caledonia since the great storm a year ago destroyed a part of the company's buildings and other property. The company is working up the stocks of ore here in France, but at the mines is doing nothing new.

The nitrate speculation has almost completely collapsed. There never was very much basis to it, and in spite of all the devices which were brought into play by the experienced speculators who manipulated the movement, our investors have not cared to buy at prices which seem to them altogether too great.

The Chamber of Deputies has under consideration a project of law permitting official quotations and dealings in shares of 25 fr. and over par value. Under the present law no shares of less than 100 fr. can be dealt in even on the Coulisse. Now a large number of the South African mining companies have shares of £1 or 25 fr. par, and though two or three of them have changed to £5, or 125 fr., especially to accommodate the French market, a great majority of them have not done so. The consequence is that buying orders have been executed through London brokers to whom remittances are sent directly. Our "Coulissiers" lose the commissions and the government loses the benefit of the stamp tax on transfers, which is quite an important amount. Hence the willingness to pass a law which might just as well have been enacted two or three years ago, and would then have saved a good deal of trouble. By the way, there is a great deal of complaint here about the methods of the London Exchange, and the delay which French purchasers experience in getting the certificates of stock which they have bought. Every possible device is adopted—at least so say the sufferers—to delay work and keep the certificates, as well as the money, in London. If this is not corrected pretty soon there is certain to be trouble. Just now it is adding to other influences to discourage buying.

AZOTE.

DIVIDENDS.

Centennial-Eureka Mining Company, Utah, dividends Nos. 75 and 76, of 50c. per share each ($30,000 in all), paid June 15th.

Elkhorn Mining Company, Montana, interim dividend of 6c. per share, payable at the London office, June 28th, to stockholders of record May 31st.

Osceola Mining Company, dividend of $1 per share, payable to stockholders of record June 26th.

Silver King Mining Company, dividend No. 7, of 25c. per share ($37,500) payable at the office in Park City, Utah, July 6th.

ASSESSMENTS.

Company.	Loc'n.	No.	Dlnqt.	Sale.	Amt.
Ajax	Utah	...	June 12	July 8	$ .05
Alpha	Nev.	14	" 27	" 18	.05
Alta	"	49	" 11	" 2	.10
Big Hole	Cal.	....	May 10	July 11	.01
Bonanza Slide Dft	"	1	Ju y 10	" 31	10.00
Bullion	Nev.	45	" 17	Aug. 7	.10
Centen'ial Gravel	Cal.	48	June 6	July 6	.01
Gold Bar Con.	"	1	June 29	" 22	.02
Gold Point Con.	"	....	" 29	.....	.05
Gray Eagle	"	40	July 12	Aug. 9	.05
Hale & Norcross	Nev.	107	July 3	July 25	.20
Justice	"	59	June 11	June 29	.10
Mexican	Nev.	52	" 7	July 10	.25
Mt George	Cal.	5	" 29	" 22	.03
M'tn.Tun.Gravel	"	6	July 15	Aug. 2	.02
New Basil Con.	"	28	June 29	July 22	.05
Occidental Con.	Nev.	18	Apr. 23	June 29	.10
Osborn Hill	Cal.	5	July 8	July 29	.25
Phœnix	Utah	....	Ju e 15	" 1	.25
South Eureka	Cal.	19	" 24	" 23	.01
Taylor, H. P.	"	...	May 31	" 26	.04
U. S. Grant	S. D.	6	June 20	" 20	.0 2½
Yellow Jacket	Nev	59	May 21	June 26	.25

DIVIDENDS PAID BY MINING COMPANIES, MAY AND YEAR, 1895.

NAME OF COMPANY.	Location.	Paid in May.	Paid in since Jan. 1.
Am. Dev. & Mg. Co.	Mont.	.....	$24,340
Alaska-Mexican	Alaska	.....	25,500
Alaska-Treadwell	"	.....	150,000
Bald Butte	Mont.	.....	12,500
Bangkok-Cora Bell	Colo.	$6,000	30,000
Belden, F. E. Mica	N. H.	4,000	22,000
Boston & Mont. (Copper)	Mont.	30,000	50,000
Bullion-Beck & Champion	Utah.	25,000	150,000
Calumet & Hecla	Mich.	500,000	500,000
Centennial-Eureka	Utah.	30,000	150,000
Champion	Cal.	3,400	17,000
Con. Cal & Va.	Nev.	.....	162,000
Copper Queen Con.	Ariz.	50,000	100,000
Coptis	Nev	.....	1,000
De Lamar	Idaho.	.....	244,000
Elkhorn	Mont.	25,000	25,000
Elkton	Colo.	.....	7,500
Forepaugh	"	.....	16,000
Gold & Globe	"	.....	11 250
Golden Fleece	"	6,000	30,000
Hecla Con.	Mont.	15,000	75,000
Homestake	So. Dak.	31,250	156,250
Hope of St. Louis	Mont.	.....	10,000
Horn Silver	Utah	.....	100.000
Iron Mountain	Mont.	10,000	60,000
Jackson	Cal.	.....	2,000
Kennedy	"	48,000	140,000
Mayflower Gravel	"	6,000	30,000
Mercur	Utah	25,000	75,000
Mollie Gibson	Colo.	.....	50,000
Montana, Ltd	Mont.	.....	82.500
Mont. Ore Purchasing Co.	"	40,000	80.000
Morning Star Drift	Cal.	16,800	84,000
Mt. Rosa	Colo.	.....	5,000
Napa Con. (Quicksilver)	Cal	20,000	50,000
Nugget	Colo.	.....	5,000
Osceola Con	Mich.	.....	50,000
Portland	Colo.	3 000	70,290
Quincy	Mich.	200,0 0	400,000
Silver King	Utah.	37,500	37,500
Smuggler	Colo	50,000	250,000
Standard	Cal.	10,000	20,000
Union	Colo	1,250	1,250
Victor	"	20 000	100,000
W. Y. O. D.	Cal.	3,000	15,000
Total		$1,216,200	$3,626,880

Readers of the "Engineering and Mining Journal" will confer a favor on the publishers if they will notify the "Journal" of any errors or omissions in the above table.

STOCK QUOTATIONS.

NEW YORK MINING STOCKS.*

NAME OF COMPANY.	Location.	Par val.	June 15. H.	June 15. L.	June 17. H.	June 17. L.	June 18. H.	June 18. L.	June 19. H.	June 19. L.	June 20. H.	June 20. L.	June 21. H.	June 21. L.	Sales
Alice	Mont.	25													
American Flag	Colo.	1	.04												500
Argentum-Jun.	"	2													
Belcher	Nev.	100													
Best & Belcher	Colo.	100													
Bodie Con.	Cal.	100													
Brunswick	"	100													
Castle Creek	Idaho	1													
Choliar	Nev.	100													
Chrysolite	Colo.	50	.18										.17		600
Comstock scrip	Nev.	100													
do. T. bonds	"	100													
do T. stock	"	100	.10	.09			.10								2,600
Con. Cal. & Va.	"	100			2.60								2.70		200
Con. Imperial	"	50													
Crown Point	"	100													
El Cristo	U. S. C	2													
Enterprise	Colo	5													
Father de Smet	S. Dak.	100													
Gould & Curry	Nev.	100											.35		100
Hale & Norcross	"	100			1.00		.90								200
Holyoke	Idaho	1													
Homestake	S. Dak.	100													
Horn Silver	Utah.	25					2.65		2.80						500
Iron Silver	Colo.	100									.37	.35			1,200
Isabella	"								.21	.20					400
K. & Pembroke							.50								100
Lacrosse	Colo.	10				.10	.10		.10				.09		3,300
Leadville Con.	"	10	.14												200
Little Chief	"	50													
Mexican	Nev.	50			.66								.60		200
Mollie Gibson	Colo.	5													
Ontario	Utah.	100											9.00		50
Ophir	Nev.	100					1.40						1.50		200
Phoenix of Ariz	Ariz	100													
Plymouth	Cal.	100													
Portland	Colo.	1													
Potosi	Nev.	100													
Quicksilver	Cal.	100													
do. pref	"	100													
Robinson Con.	Colo.	50													
Savage	Nev.	100													
Sierra Nevada	"	100													
Standard Con.	Cal.	100											2.60		100
Union Con.	Nev.	100													
Victor	Colo.	5													
Yellow Jacket	Nev.	100			.50				.45						200

* Official quotations N. Y. Stock and Con. Stock and Petroleum Exchanges.
Total shares sold, 10,650.

BOSTON MINING STOCKS.*

NAME OF COMPANY.	Location.	Par val.	June 14. H.	June 14. L.	June 15. H.	June 15. L.	June 17.† H.	June 17.† L.	June 18. H.	June 18. L.	June 19. H.	June 19. L.	June 20. H.	June 20. L.	Sales.
Allouez	Mich.	25			.87½								.75		755
Arnold	"	25													
Atlantic	"	25	17.00		17.00				17.00		17.00	16.00			155
Bonanza	"	10													
Bost & Mont.	Mont.	25	53.88	53.50	53.50	53.25			53.00	52.50	52.75	51.50	52.00	51 25	2,457
Butte & Bost	"	25							15 25	14.50	14.88	14.50	14.50	14.00	2,495
Cal. & Hecla	Mich.	25	295						295		295		295		48
Centennial	"	25			1.00				1.00						500
Dominion Coal	N. S.	100	16.50		16.25				16.50	16.00	16.38		16.13		645
do. pref.	"	100	97.50	97.00											155
Franklin	Mich.	25													
Humboldt	"	25													
Kearsarge	"	25									13.88	13.25			235
Lake S'perior I.	"	25													
Mesnard	"	25													
Napa Con. Q.	Cal.	1							6.75		7.00				100
National	Mich.	25											1.25		50
Osceola	"	25							28.00	27.50	28.10	26 00	28.00	27.00	337
Quincy	"	25			113½				119½		119½		119	115½	86
do. scrip	"				66 00				64.00				64.00		96
Santa Ysabel	Cal.														
Tamarack	Mich.	25	138								137½				28
do. Mg. Rights	"		4.00	3.30	3.75	3.50									2,597
Tamarack, Jr.	"	25			19.88										50
Wolverine	"	25									6.50		6.75		60

* Official quotations Boston Stock Exchange. † Holiday. Total shares sold, 10,819.

COLORADO SPRINGS MINING STOCKS.*

NAME OF COMPANY.†	Par val	June 10. H.	June 10. L.	June 11. H.	June 11. L.	June 12. H.	June 12. L.	June 13. H.	June 13. L.	June 14. H.	June 14. L.	June 15. H.	June 15. L.	Sales.
Alamo	$1	.03		.03¾	.03⅜			.03¾						5,500
Anaconda	5			.39½				.39	.38½	.39				5,088
Argentum J	2	1.02	.97	1.02	1.01					1.01	1.00¾	1.00		9,700
Bob Lee	1			.0065	.006	.006						.0065	.006	15,000
Crippie C C	1	.05¾	.05¼	.05¼	.05⅜	.05	.04⅞	.01¾		.05⅜	.05	.05⅝	.05¼	24,000
C. O. D.	1													
Cr. & C. C.	1	.02¼		.02				.02¼	.02			.02		15,550
Fanny R.	1					.05¼		05⅝	.05¼	.05¾				8,000
Franklin	1									.007				1,000
Gold & Gl.	1			.08						.07⅝				1,25
Isabella	1	.16¾			.17	16¾	.17⅛	.17		.17⅛	.17¼	‡.16¼		33,55
Mollie G.	5	.96		.95	.95		.97		.97	.94¾	.94			2,80
Mt. Rosa	1	.05¾		.05¼			.05¼		.05⅝		.05⅜	.05⅝	.05¼	66,500
Pharmacist	1	.05¾					.05¾							7,00
Portland	1	.68	.67	.67	.65¾	.67			.70½	.67⅛				11,400
Specimen	1				.03									4,00
Summit	1													
Union	1	.14¼	.14	.14⅜	.14⅛	.14⅜		.14⅜	.14	.14⅜	.14¼	.14¼		53,750
Work	1			.03										2,000

* Official quotations Colorado Springs Mining Stock Association. † All the companies are located in Colorado. ‡ Stamped. Total shares sold, listed, 266,088; unlisted, 285,245.

ASPEN MINING STOCKS.* Week ending June 14

NAME OF COMPANY.	Location.		Par value.	Bid.	Asked.	Shares sold.	Price.
Alta Argent	Aspen,	Colo.	$1.00	$0.09	$0.10	8,500	$0.10
Argentum-Juniata	"	"	2 00	1.00	1.01	2,000	1.01
Aspen Contact	"	"	5.00	.25	.26		
Aspen Deep Mining	"	"	1.00	.08	.08¼	9,000	.08¼
Best Friend	"	"	1.00	.04	.05	13,000	.05
Bi-Metallic	"	"	1.00	.02	.03	4,000	.03
Bushwhacker	"	"	1.00	.06	.06¼	3,8.0	.06¼
Caverhill Consolidated	"	"	1.00	.20	.20	18,000	.20
Della S.	"	"	5.00	.70	.72½	9,000	.72½
Gold Valley Placer	Routt Co.,	"	1.00				
Mineral Farm Consolidated	Aspen,	"	1.00	.11	.12	22,000	.12
Mollie Gibson	"	"	5.00	.94	.96	2,300	.96
Old Colony Gold	Taylor River,	"	1.00	.75	.75	2,300	.75
Sheep Mt. T. & M	Crystal,	"	1.00				
Smuggler	Aspen,	"	1.00	1.40	1.60	200	1.60

* Special report of Arkell, MacMillan & Stewart. Total shares sold, 94,100.

COAL AND COAL RAILROAD STOCKS.*

NAME OF COMPANY.	Par value.	June 15. H.	June 15. L.	June 17. H.	June 17. L.	June 18. H.	June 18. L.	June 19. H.	June 19. L.	June 20. H	June 20. L.	June 21. H.	June 21. L.	Sales
Am. Coal	25													
Balt. & Ohio	100	63		63⅛	63¼	61	63⅛	63⅛		63⅛		64	63⅝	1,440
Buff., R. & P.	100													
do. pref.	100													
Ches. & Ohio	100	22⅞	23⅛	23	22⅞	23¼	22¾	23⅛	22¼	22⅛		22⅞	22⅝	13,315
Col.C.& I.Dev	100	9				9½	9¼			9				650
Col. Fuel & I.	100	29⅛	29	29½		29⅞	29¼	28⅝	28⅛	29⅛	28½			2,900
do. pref.	100													
Col.,H.V.&Tol	100	26¼		26⅛	26¼	25⅝	26½	26¼		26⅜	25⅜	26⅛	26¼	1,270
do. pref.	100			65										
Col. & H.Coal	100			9	8¾	9		9		8½				575
do. pref.	100													
Con. Coal	100													
Del. & Hud.C	100	129¾	129½	129⅝	129⅜	130	129¾	130		130	129½	130¼	129¾	3,410
Del., L. & W.	50	162½		161¾		162½	161⅝	162¼		163	162½	163¼	163	2,223
Lake Erie&W	100	24½	24¼	25	24½	25	24½	24¼		24⅞	24¼	24⅜		4,1 5
do. pref.	100			83¼		83¼				83½	83			675
Maryl'dC.pref	100													
Morris & Es'x	100													
N. J. Central	100	100⅜		100	98¾	100⅝	99⅜	100½	99¾	101¼	100	101¼	100	7,810
N. Y., L. & W.	100													
N. Y.,L.E.&W	100	10¾		10¾	10½	10¼	9⅝	10	9¾	10	9¾	10	9¾	8,985
do. pref.	100													
N.Y.,Susq.&W	100	11¼	11¼	11¼	11	11	10¾	10¼	10¾	11	10¼	10¼	10¼	5,981
do. pref.	100	32¾	32	32	29	30	29½	30⅜	29¼	30⅛	29⅛	29⅛	27⅛	18,020
Norfolk & W.	50	3¾		3¾	3⅝			3¼	3⅛	3⅛	3¼			3,650
do. pref.	50					14½	14¼	13¾	1.⅜	13¾				1,150
Penn. Coal	50													
Phila. & Read.	50	18	17¾	17⅝	16½	17¼	16⅝	18	17	18¾	17⅜			97,340
Tenn. C. & I.	100	35	32¾	38	35	38⅜	37⅝	37½	36¼	39⅜	37½	40	38⅝	112,46
do. pref	100	90				97½								110
Wheel. & L. E	100	14⅝	14⅜	14¾	14⅝	14⅝	14⅜	14⅝	14⅜	15⅜	14⅜	15⅜	15¼	17,650
do. pref.	100			46¾		46¾	46⅜	46¾	46¼	47¼	46¾	49¼	47⅜	4,438

* Official quotations N. Y. Stock Exchange. Total shares sold, 216,193.

INDUSTRIAL AND TRUST STOCKS.*

NAME OF COMPANY.	Par value.	June 15. H.	June 15. L.	June 17. H.	June 17. L.	June 18. H.	June 18. L.	June 19. H.	June 19. L.	June 20. H.	June 20. L.	June 21. H.	June 21. L.	Sales
Adams' Exp	100					148⅝		150		150	149⅝			75
Am. Cot.Oil	100	28¼	28	27¾	27⅝	30	28	29⅜	24½	29¼	29	29⅜	28½	7,321
do. pref.	100			73½		75½	74	75⅜	75	74¾				1,628
Ameri. Exp.	100			113½		113		113						134
Am. Sug. Rf.	100	118¾	117¾	118½	117⅝	118¼	117	119¾	117⅜	120¼	118	118⅜	117⅜	232,74
do. pref.	100	10.¾		103¾	100	100	99¾	100¼	100¼	100⅝	100⅜			2,168
Edison E. Ill	100			102¼	101⅜	102¾	102			102		101¾		1,605
General Elec	100	36	35¾	36¼	35⅝	36	35¾	35¾	34¾	35¾	35⅝	36⅜	35⅝	15,551
Nat Lead.	100	36¼		36¾	36	36¼	36	36½	35¾	35½	34½	34¾		6,574
do. pref	100	9.¾		90¼	90	90¾		90¼		90¼	89¾			1,942
Nat.Lins.Oil.	100			29¼		30¾	29¾	31⅝	30	30⅝		3 ¾	30⅛	10,000
U.S.Cordage	100	2	1¾	1¾		1⅞	2	2⅛	2	2¼	1⅝	2¼	2	7,463
do. pref	100	3½		3½		3¼	3¼	4⅛	4¼	4¼	4			2,216
do. gtd.	100			8	7	8	7⅝	8		8¼	8¼			1,910
U.S. Express	100					117½								161
U. S. Rubber	100	41¾	41¼	44	42¾	43½	42	42⅝	41⅝	41⅝	41	41¾		14,444
do. pref	100	98		98½		98		98⅝	98	98¼	98			890
Wells Fargo	100					109								10
West. Union	100	93¾	93⅜	94	93⅝	94½	93⅝	94½	93¾	92¾	92⅝	92¾	92¼	15 763

* Official quotations N. Y. Stock Exchange. Total shares sold, 322,611.

MONTANA STOCKS.* HELENA, May 18.

NAME OF COMPANY.	Location.	Company's office	Par value.	Bid.	Asked	Shares sold.	Price	Date.
Am.Dev.&M.Co.	Silv.Bow Co, Mont.	Butte, Mont.	$1	$2.25	$2.75			
Bald Butte	L.& Cl'ke Co., "	Helena "	1	3.50	4.00			
Benton Group	Meagher Co. "	W.Sph. S.Mont	5	.20	.30			
Bi-Metallic	Granite Co. "	St. Louis, Mo.	25	4.00	5.00			
Combination	" "	" "	10	.65	.25			
Elkhorn	Jefferson Co. "	London, Eng.	£1	108.	1:8.			
Granite Mt.	Granite Co., "	St. Louis, Mo.	$25	1.75	2.25			
Hope of St. L.	" " "	" " "	10	2.50	3 00			
Hope	Jefferson Co., "	Helena, Mont.	5	3.50	5.00			
Hel'a & Frisco	Shoshone Co , Id.	" "	5	2.00	3.00			
Iron Mountain	Missoula Co.,Mont.	" "	10	.60	.65	3,000	.60	May 7
Ontario	DeerLodgeCo. "	" "	1	.95	1.00	300	.95	" 17
Poorman (Cœur d'Alene)	Shoshone Co., Id.	Butte "	10	.40	.45			
Royal Gold	D'r LodgeCo.,Mont	D'r Lodge, "	5	.70	.85			

* Special report of Samuel K. Davis. Total shares sold, 3,300.

Duluth Stocks.* June 9.

Name of Company.	Par value	Price	Bid.	Asked
Adams Iron	$10		$3.00	$3.50
Biwabik I. M.	100	$19.50	20.00	21.00
Chandler Iron	25			27.00
Clev.Cliffs Iron.	100		25.00	32.00
Great No. M.	100		1.75	2.00
Great West. M.	100		1.00	1.50
Jackson Iron	25			60.00
L. Sup. Con. M.	100	11.50	12.00	12.50
L. Sup.(Marq'te)	25		17.00	20.00
Mes. C., L. & E.	10	5.00		4.00
Met. L. & Iron.	25			60.00
Minnesota Iron.	100	40.00	45.00	55.00
Mes. Chief Iron.	100		2.00	2.25
Mis. Mt. Iron.	100	16.50	16.00	17 00
Mountain Iron	100	42.00	45.00	50.00
Ohio Mining	100	4 00	4.00	5.00
Pioneer Iron	25		.25	1.00
Pitts. & L. A	100		55.00	62.00
Sec'ty L. & E.	10		16.00	18 00

* Official quotations Duluth Exchange.

Pittsburg Stocks.* June 20.

Name of Company.	Par value	Last sale.	Bid.	Ask.
COAL STOCKS:				
N.Y. & Cl. G. C.	$50		$31	$37½
GAS STOCKS:				
Allegheny	100	$47½	47	48
Chartiers Valley.	100	8¼	7	10
Ohio Valley	50			35
People's Nat. Gas	50		30	32
People's Nat. Gas and Pipeage	25	14¾	14½	14⅝
Pennsylvania	50	7½	5½	9
Philadelphia.	50	17½	17¼	17⅝
Wheeling	50		18	20
MINING STOCKS:				
Lustre	10	12½	12	12⅝
OIL STOCKS:				
Tuna	50			20

*Official quotations Pittsburg Exchange.

San Francisco Stocks.*

NAME OF COMPANY	Location	CLOSING QUOTATIONS. Jun. 14	Jun. 15	Jun. 17.	Jun 18	Jun. 19	Jun. 20.
Alta	Nev.	.15		.16	16	.16	.17
Belcher	"	.37	.36		.34	.36	.38
Belle Isle	"						
B. & Belch	"	.40	.44	.45	43	46	.51
Bodie	Cal.	.31	.25	.31	.33	.33	.34
Bulwer	"					.06	.05
Challar	Nev.	20	.51	50	.49	.57	.57
Com'w'lth	"						
Con.C.&V.	"	2 42	2.45	2 35	2.35	2.47	2.45
Crown Pt.	"	37	.35	.35	.34	.35	.37
Eureka	"						
G'ld & C'y	"	.28	.30	.27	.25	.27	.28
Hale & N	"	.92	.92	.90	.87	.90	.87
Mexican	"	55	.56	.57	.56	.57	
Mono	Cal.				.05	.09	.08
Ophir	Nev.	1.32	1.35	1.35	1 30	1 35	1.40
Potosi	"	.41	.44	.42	.40	.43	.44
Savage	"	.34	.35	.35	.32	.34	.36
Sierra Nev	"				.50	.50	.58
UnionCon	"	.28	.30	.24	.26	.27	.33
Utah	"						
Yel. Jack.	"	.42	.41	.41	.40	.42	.46

* Par value of all shares quoted is $100.

Baltimore Stocks.* June 20.

Name of Company.	Location.	Par value.	Bid.	Ask.
Balt. & N. C.	N. C.	$5		$0.02
Con. Hill	"	5		.10
Con. Coal	Md.	100	$32.00	36.00
Con. G. & C.	N. C.	5		.04
Ga. C. Coal	Md.	100	103.00	104.00
How. C. & C.	"	5	1.10	1.20
Lake Chrome	"	5		.10
Silver Valley	Md.	5		20.00

* Official quotations Baltimore Stock Exchange.

LONDON. Week ending June 8.

Name of Company.	Par value.	Prices. Bid.	Asked.
AMERICANS:		£ s. d.	£ s. d.
Alaska-Mexican	£1	1 5 0	1 10 0
Alaska Treadwell	5	3 15 0	4 5 0
American Belle	1	1 3	1 9
De Lamar	1	1 1 3	1 3 9
Elkhorn	1	7 6	8 6
Harquahala	1	1 6	2 0
Holcomb Valley	5s.	1 9	2 3
Jay Hawk	£1	1 3	1 9
Montana	1	12 6	13 6
New Guston	1	10 0	12 6
Palmarejo (Mex.)	1	3 0	3 6
Plumas-Eureka	2	13 3	13 9
Poorman	5s.	2 6	3 0
Richmond	£5	12 6	17 6
Sierra Buttes	2	10 0	12 6
Springdale	4s.	2 3	2 9
SOUTH AMERICANS:			
Colombian Hydraulic	£1	11 3	13 9
Frontino & Bolivia	1	1 3 9	1 6 3
Tolima, A shares	5	7 10 0	8 0 0
" B "	5	6 10 0	7 0 0
COPPER STOCKS:			
Cape Copper	2	2 1 3	2 3 9
" " preferred	2	1 18 9	2 1 3
Copiapo	2	2 2 6	2 5 0
COPPER STOCKS:			
Rio Tinto	£10	16 12 6	16 15 0
Tharsis	2	4 15 0	4 17 6
AUSTRALIANS:			
Bayley's Reward	1	9 0	10 0
Broken Hill Propriet'ry	8s.	2 4 0	2 5 0
Mt. Morgan Gold	17s. 6d.	2 7 6	2 10 0
INDIANS:			
Champion Reef	£1	4 13 9	4 16 3
Mysore	1	2 18 9	3 1 3
Nundydroog	1	1 16 3	1 18 9
Ooregum		3 8 9	3 11 3
" preferred		4 0 0	4 2 6
SOUTH AFRICANS:			
British S. Africa Co.	1	3 13 9	3 16 3
City & Suburban	1	25 0 0	25 10 0
Crown Reef	1	9 7 6	9 12 6
De BeersCon (diam'nd)	5	20 8 9	20 11 3
Durban-Roodepoort	1	7 0 0	7 2 6
Ferreira	1	16 10 0	17 0 0
Geldenhuis Estate	1	8 6 3	8 8 9
Jagersfontein (diam'd)	5	9 7 6	9 12 6
Langlaagte Estate	1	5 3 9	5 5 3
New Primrose	1	6 13 9	6 16 3
Robinson	5	8 12 6	8 17 6
Simmer & Jack	1	14 15 0	15 0 0

MEXICO. Week ending June 14.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Closing.
Amistad y Concordia	Hidalgo	9,600	$4.53		$66	$66
Angustias	Guanajuato	2,400	15.00		1,100	1,120
Asturiana y Anexas	Zacatecas	2,500	10.00		370	380
Cerro Colorado	Chihuahua	15,000		$1.00	15	15
Cinco Senores	Guanajuato	2,000	30.00		1,500	1,500
Concepcion y Anexas	S. Luis Potosi	2,700			410	360
El Oro	Guanajuato	500			100	100
do. pref	"	2,000	2.00		100	100
Huautla Sta. Ana	Morelos	4,000	1.50		105	103
Luz de Borda	Michoacan	3,000		0.50	40	40
do. Free stock	"	1,000			40	40
Luz de Maravillas	Hidalgo	1,100			400	400
Purisima de los Com.	Zacatecas	2,400			70	70
Real del Monte	Hidalgo	2,551	20.00		1,250	1,250
Rosario y Anexas	Durango	4,800			120	120
do. pref	"	2,400			80	80
San Rafael y An	Hidalgo	1,200	30.00		1,700	1,500
do. free stock	"	1,200	30.00		1,175	1,150
Sta. Elena Almoloya	"	1,280		0.50	10	11
Sta. Gertr. y Anexas	"	28 800	1.50		77	76
do. free stock	"	9,600	1.05		30	18
Sta. Maria de la Paz	S. Luis Potosi	2,400			250	250
Tlauzingo	Puebla	2,400			40	40
Zaragoza	Hidalgo	1,100			30	30
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	130	120

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

Philadelphia.* Week, June 19.

Company.	Par	High	Low.	Sales.
Cambria Iron	$50	$62½	$57	412
Hunt & Br. Top	50	33¼	33	42
do. pref	50	54		3
Lehigh C. & N.	50	48	46½	256
Lehigh Valley	50	38¾	37½	3,872
Penn. R. R.	50	53⅜	52⅞	3,345
Penn. Salt	50			

* Official quotations Phila. Exchange. Total sales, 7,930.

Shanghai, China.* May 21.

Name of Co.	Par.	Last div.	Price.
Jelebu Mg.	$5	$0.25	T. 2·55
Punjom Mg.	4		" 4·38
do. pref.	1		" 1·28
Raub A'lianG.	£1	10½d.	" 3·28
Sheridan Con.	T. 100		" 4·00

* Special Report of J. P. Bissett & Co. Prices quoted are in silver taels.

PARIS. Week ending June 7.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Closing
			Francs.	Fr.	Fr	Fr.	Fr.
Aciéries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	1,980.00	1,970.00
" " Firminy	"	"	3,000,000	500	85.00	1,570.00	1,560.00
" " Fives-Lille	"	"	12,000,000	500	35.00	620.00	618.00
" " la Marine	"	"	20,000,000	500	30.00	790.00	802.50	
" " Longwy	"	"		500	35.00	670.00	655.00
" " l'Horme	"	"		500		15.00	15.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	40.00	350.00	385.00
Anzin	France	Coal			200.00	4,100.00	4,100.00
Boleo	Lower Cal.	Copper		500		1,125.00	1,060.00
Bruay	France	Coal	3,0 0,000	400	600.00	14,700.00	14,850.00
Callao	Venezuela	Gold	32,200,000	125		12.25	12.50
Cape Copper	S. Africa	Copper		50	1.50	57.50	52.50
Champ d'Or	"	Gold		25		108.75	107.50
Courrieres	France	Coal	60,0,000	300	150.00	4,300.00	4,210.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	516.00	526.25
Dombrowa	Russia	Coal		500		575.00	580.00
Dourges	France	"		1,000	225.00	5,850.00	5,872.50
Dynamite Centrale	"	Explosives		500	25.00	625.00	575.00
Dynamite Francaise	"	"		500	25.00	695.00	700.00
Epinac	"	Coal		2,500		680.00	690.00
Huanchaca	Bolivia	Silver		125	5.00	188.12	183.43
Jerez-Lanteira	Spain	Copper				6.75	6.50
Kebao	Tonquin	Coal		500		590.00	580.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	595.00	595.00
Malfidano	Italy	Zinc	12,500,000	500	52.50	970.00	950.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	37.50	280.00	281.50
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	785.00	790.00
Nickel	N. Cal'd'nia	Nickel	12,720,000	500	30.00	236.00	235.00
Penarroya	Spain	Coal, etc.		500	52.50	835.00	897.00
Pontgibaud	France	Lead, etc.				280.00	280.00
Rio Tinto	Spain	Copper	81,250,000	250	8.00	399.00	409.35
Robinson	S. Africa	Gold		125	12.50	225.00	228.75
Saint Elie	Fr. Guiana	"	4,000,000	25		37.50	38.00
Salines de l'Est	France	Salt		500	27.00	280.00	272.50
Soufres Roumaines	Italy	Sulphur				202.50	215.00
Tharsis	Spain	Copper		50	6.25	118.75	121.87
Vicogne-Noeux	France	Coal				700.00	17,250.00	16,950.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	30.00	462.50	470.00

VALPARAISO, CHILE.* Week ending May 11.

Name of Company.	Capital.	Share value. N'minal.	Paid up.	Last dividend.	Prices. Bid.	Asked.	Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$40	40¼	$40
Caracoles	315,000	100	100	5 "		50	
Descub. de Huantajaya	1,000,000	100	100	2 "	30	35	40
Oruro	800,000	1,000	1,000		2,900	2,920	2,920
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	45	50	50
Todos Santos	2,000,000	100	100	0¼ "	20	20½	20
Nitrate Cos:							
Agua Santa	5,000,000	500	500	6 "	155	157	154
Antofogasta	2,000,000	200	200	10 "	193	195	195
Union	3,000,000	200	100	3 "	97	99	95¼

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SALT LAKE CITY STOCKS.* Week ending June 15.

Name of Company.†	Par value.	Bid.	Asked.	Actual selling price.	Name of Company.	Par value.	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.20	$0.40	$0.35	Daly	$20	$6.25	$6.75	$6.75
Alliance	1	1.05	1.20	1.10	Daly West	20	6.00	6.75	6.50
Amer. Nat. Gas	10	.15	.30	.20	Horn Silver	25	2.60	2.85	2.85
Anchor	20	3.15	3.40	3.35	Mammoth	25	1.00	1.25	1.10
Bogan	1	.30	.60	.50	Mercur	25	3.50	3.75	3.75
Bullion-Beck & C.	10	9.00	10.25	9.50	Morgan	125	.50	.85	.75
Cane Springs	5	.50	.83		Ontario	100	8.50	10.25	10.00
Centen'l Eureka	50	48.00	55.00	51.00	Silver King	20	14.00	14.50	14.50
Cleveland Con	1		.50		Tetro	1		.25	
Comstock	25	.40	.50	.42½	Utah	1	.50	1.00	
Dalton	5	.01½	.03	.02	Utah Lime	10	3.50	4.25	4.00

* Special report of James A. Pollock. † All the companies are located in Utah.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure .18@.20
Commercial, in bbls. and cbys. .01¼@.02
Carbonic, liquefied, ℔ lb. .07@.10
Chromic .20
Hydrofluoric .04@.07
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Alum—Lump, ℔ cwt. $1.60@$1.80
Ground, ℔ cwt. $1.70@$1.90
Lump ℔ ton, Liverpool £1 10s.@£4 17s.
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt. $1.25@$1.75
Ammonia—Sal., lump, ℔ lb. .09@.10
Carbonate, ℔ lb., English and German. .08½@.09½
Muriate, white, in bbls., ℔ lb. .07@.08
Aqua Ammonia—(in cbys) 18° ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04¾@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ lb. .07@.08
Oxide .18@.25
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .03@.03¼
Red ℔ lb. .05½@.06
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $15@$120
Italian, ℔ ton, c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. .04½@.04½
Pearl .05½@.06
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton, $15.00@$29.00
Barium—Carbonate, pure precip., ℔ lb. .10
Carbonate, commercial. ℔ lb. .03
Chlorate, crystal, ℔ lb. .25@.30
Chloride, commercial, ℔ lb. .02@.02½
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06½@.07
Sulph., Am. prime white, ℔ ton $15@$18
Sulph., foreign, floated, ℔ ton $16@$18
Sulph., off color, ℔ ton $10@$11.50
Carb., lump, f. o. b. L'pool, ℔ ton £6
Bauxite—℔ ton $7 @ $8
Bichromate of Potash—Scotch. ℔ lb. .09@.10
American, ℔ lb. .09@.09½
Bichromate of Soda—℔ lb. .08@.09
Borax—Refined, ℔ lb., in car lots .06@.06½
Bromine—℔ lb. .25@.35
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.00
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb. .04@.05
China Clay—English, ℔ ton $12@$17.00
Domestic, ℔ ton $9@$11
Chlorine, liquefied, ℔ lb. .25
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Commercial, ℔ lb. .03@.05
Cobalt—Oxide, ℔ lb. $1.40@$1.55
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ℔ lb. .03¾@.04¼
Nitrate, ℔ lb. .25
Copperas—Common, ℔ 100 lbs .50@.65
Best, ℔ 100 lbs. $1.25@$1.50
Liverpool, ℔ ton, in c'sks. £1 11s.@£1 15s.
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .06½@.07½
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.04
Epsom Salt—℔ lb. .01@.01¼
Feldspar—Ground, ℔ ton .$6.00@$10.00
Fluorspar—Powdrd, No. 1, ℔ ton. $15@$20
Lump, at mine $6@$8
French Chalk—℔ ton $2.25@$2.30
Fuller's Earth—Lump, ℔ ton. $16@$20
Glauber's Salt—in bbls., ℔ cwt. .50@.75
Glass—Ground, ℔ lb. .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. a. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz. $6.00
15 gr., c. v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.75
Iodine—Resublimed, ℔ lb. $3.50@$3.60
Iridium—Oxide ℔ lb. $90
Iron—Nitrate, 40°, ℔ lb. .01@.01½
47°, ℔ lb. .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb. .04¼@.05
White, American, in oil, ℔ lb. .05½@.06½
White, English, ℔ lb., in oil .06½@.07½
Acetate, or sugar of, white .06@.08
Nitrate .05¾@.06½
Lime Acetate—Am. Brown .90@.95
" Gray $1.50@$1.60
Litharge—Powdered, ℔ lb. .04½@.05½
English flake, ℔ lb. .07½@.09¾
Magnesite—Crude, ℔ ton of 1,015 kilos $7@$10
Calcined, ℔ ton of 2,240 lbs. $12@$14
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit, .23@.28
Oxide, ground, ℔ lb. .02½@.06½
Mercuric Chloride—(*Corrosive Sublim'te*) ℔ lb. .55@.60
Marble Dust—℔ bbl. .85c.@$1
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mica—In sheets according to size. 1st quality, ℔ lb. $3.25@$6
Mineral Wool—Ordinary slag .02½
Ordinary rock .02¼
Nitre Cake—℔ ton $2.50@$3
Ochre—Rochelle, ℔ lb. .01@.01½
Washed Nat Oxf'rd, Lump, ℔ lb. .06¼@.06½
Washed Nat Oxf'rd, Pow., ℔ lb. .06¾@.07¼
Golden, ℔ lb. .03@.05
Domestic, ℔ ton .$8@$10
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .12@.20
Dark filtered, ℔ gal. .10@.15
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.12
Phosphorus—℔ lb. .55@.55
Precip., red, ℔ lb. 75@.80
white, ℔ lb. 80@.85
Platinic Chloride—Dry, ℔ oz. $6
Plumbago—Ceylon, ℔ lb. .04@.05
American or German, ℔ lb. .02@.02½
Potassium—Cyanide, ℔ lb., C. P. 52 67%, ℔ lb. .40
mining .20@.22
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .10@.12
Chlorate, powdered, English, ℔ lb. .12@.14
Carbonate, ℔ lb., by casks, 98-99%, .06@.07
Caustic, ℔ lb., pure slick .04½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb. .05@.06
Bichromate, ℔ lb. .09@.11
Yellow Prussiate, ℔ lb., 24c. contr., 25c. single casks.
Red Prussiate, ℔ lb. .39@.45
Pumice Stone—Select lumps, lb. .03½@.15
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01¾@.02
Pyrites—Non-cupreous, p. unit. 10@.11
Quartz—Ground, ℔ ton .$6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03¼@.03¾
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05½
Rubbing stone, ℔ lb. .03½@.04
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.50
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $9@$15
Saltpeter—Crude, ℔ lb. .04@.05
Soapstone—Ground, ℔ ton $6@$8
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.90
Strontium—Nitrate, ℔ lb. .08@.09
Sulphur—Roll, ℔ lb. .01½@.02
Flour, ℔ lb. .01¼@.01¾
Sylvinit, 27@35%, per unit .36½@.37½
Talc—Ground French, ℔ lb. .01¼@.01½
American No. 1, ℔ lb. .01@.01½
American No. 2 .006@.008
Terra Alba—French, ℔ cwt. .50@.80
English .70@.80
Domestic, ℔ ton $8.50@$10
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, single .07@.12
Double or strong, 54° B. .10@.11
Oxymur, or nitro .11
Vermilion—Imp. English, ℔ lb. .64@.66
Am. quicksilver, bulk .59@.62
Am. quicksilver, bags .60@.64
Chinese .85@$1.00
Trieste .90@.95
American .11½@.12
Zinc White—Am., Dry, ℔ lb. .03¼@.04½
Antwerp, Red Seal, ℔ lb. .05½@.05¾
Paris, Red Seal, ℔ lb. .06¾@.07
Muriate solution .06
Sulphate crystals in bbls., ℔ lb. .03@.03

THE RARER METALS.

The prices given below are the prices in New York, based on those of the German makers, and are per gram except where otherwise stated:

Arsenic (metallic), per kilo $0.25
Barium (ex amalgam) 4.00
Boron (cryst.) 4.25
Cadmium (metallic), " 2.75
Calcium (per electrol.) 10.00
Cerium (pulv.) 4.00
Chromium (fus.) .50
" (cryst.) .60
Cobalt (metallic) .35
Columbium 6.00
Didymium (pulv.) 10.00
Erbium-Yttrium (oxydat.) 10.00
Gallium (cryst.) 21.00
Germanium (fus.) 75.00
Glucinum (pulv.) 12.00
" (cryst) 21.00
Indium 9 00
Iridium (fusum) 2.00
" (grains) .50
Lanthanum (pulv.) 12.00
Lithium (in glob.) 8.00
Manganese fusum) .50
Molybdenum (pulv.) .25
Niobium (pulv.) 6.00
Osmium 2.00
Palladium (wire) 1.50
Potassium (metal), per kilo 27.50
Rhodium 3.25
Ruthenium 5.00
Rubidium 10.00
Selenium (cryst.) .10
Silicon (metal) .60
Strontium (per electrol.) 14.50
Tantalum 9 50
Tellurium (fusum) .50
Thallium .15
Titanium 1.00
Uranium 2.00
Vanadium 7.00
Wolframium (powder), ℔ 10 gr. .01
Zirconium .10

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par val	Assessments. Total Levied	Assessments. Date and amount of last.			Dividends. Total paid.	Dividends. Date & amount of last.		
	Adams, s. L.	Colo.	$1,500,000	150,000	$10	*	.....	.....	.....	$687,500	Jan.	1892	05
	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25	.....	.....	.....	.....	2,224,000	Apr.	1895	.37½
	Alice, s.	Mont.	10,000,000	400,000	25	*	.....	.....	.....	975,000	Nov.	1891	.06¼
	Amador, G.	Cal.	1,250,000	250,000	5	*	.....	.....	.....	31,250	Aug.	1890	.12½
	American, G.	Colo.	3,000,000	300,000	10	*	.....	.....	.....	225,000	Mar.	1892	.05
	American Belle, s. & c.	Colo.	2,000,000	400,000	5	*	.....	.....	.....	50,000	Apr.	1891	.12½
	Americ'n & Nettie, G. &	Colo.	.....	300,000	.....	.....	.....	.....	.....	175,000	Mar.	1892	.05
	Atlantic, C.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb.	1891	1.00
	Argyle, G.	Colo.	1,000,000	1,000,000	1	*	.....	.....	.....	20,000	Mar.	1892	.01
	Aspen Mg. & R., s. L.	Colo.	2,000,000	200,000	10	*	.....	.....	.....	900,000	July	1894	.10
	Aurora, L.	Mich.	2,500,000	100,000	25	.....	.....	.....	.....	650,000	Feb.	1893	2.00
	Bad Per, s	Ont.	250,000	50,000	5	*	.....	.....	.....	37,500	Mar.	1890	.25
	Bald Butte	Mont.	250,000	250,000	1	*	.....	.....	.....	382,000	Jan.	1895	05
	Bangkok-C. Bell, s.L.	Colo.	600,000	600,000	1	.....	.....	.....	.....	3,510	May	1895	.01
	Bates Hunter, s. g.	Colo.	1,000,000	1,000,000	1	*	.....	.....	.....	67,500	Dec.	1891	.00¾
	Belden, F. E., m.	N. H.	500,000	100,000	5	*	.....	.....	.....	143,113	May.	1895	.04
	Belle Isle, s.	Nev.	10,000,000	100,000	100	230,271	Sept	1893	.10	300,000	Dec.	1879	.25
	Belcher, s. G.	Nev.	10,400,000	104,000	100	3,262,900	Nov.	1893	.20	15,397,200	Apr.	1876	1.00
	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	120,000	Dec.	1889	.25	200,000	Jan.	1890	.10
	Best Friend	Colo.	1,000,000	1,000,000	1	*	.....	.....	.....	90,000	Feb.	1892	.01
	Bi-Metallic, s. G.	Mont.	5,000,000	200,000	25	.....	.....	.....	.....	1,630,000	June	1893	.10
	Bodie Con., G. I.	Cal.	10,000,000	100,000	100	714,990	July	1893	.15	1,677,572	Dec.	1894	.25
	Boston & Mont., G.	Mont.	2,500,000	250,000	10	*	.....	.....	.....	520,000	June	1888	.15
	Boston & Mont., C. &	Mont.	3,750,000	150,000	25	*	.....	.....	.....	2,475,000	May.	1895	2.00
	Brotherton, I.	Mich.	2,000,000	80,000	25	*	.....	.....	.....	120,000	Mar.	1893	.50
	Bulwer, G.	Cal.	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct.	1892	.06⅔
	Bunker Hill & S. & L.	Idaho	5,000,000	300,000	10	*	.....	.....	.....	150,000	Oct.	1888	.06
	Caledonia, G.	Dak.	1,000,000	100,000	100	505,000	May	1885	.15	192,000	Oct.	1890	.06⅔
	Calumet & Hecla C.,	Mich.	2,500,000	100,000	25	1,300,000	.....	.....	.....	41,375,000	May.	1895	5.00
	Centen'l-Eureka, s. L.	Utah.	1,500,000	30,000	50	30,000	Mar.	1888	1.00	1,110,000	May	1895	.50
	Central, C.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
	Champion, G.	Cali.	340,000	34,000	10	150,000	.....	.....	.....	208,800	May.	1895	.10
	Chrysolite, s. L.	Colo.	10,000,000	200,000	50	*	.....	.....	.....	1,650,000	Dec.	1884	.25
	Coeur D'Alene, s. L.	Idaho	5,000,000	500,000	10	.....	.....	.....	.....	340,000	June	1893	.06
	Colorado Central, s. L.	Colo.	2,700,000	275,000	10	*	.....	.....	.....	562,661	Apr.	1893	.05
	Commonwealth, s.	Nev.	10,000,000	100,000	100	200,000	Nov.	1893	.10	20,000	Nov.	1890	.20
	Confidence, s. L.	Nev.	2,496,000	24,960	100	1,589,550	Aug.	1892	.50	277,680	Apr.	1889	1.00
	‡Cons. Cal. & Va., s. G	Nev.	21,800,000	216,000	100	216,000	Dec.	1892	.50	3,952,800	Mar	1895	.25
	Contention, s.	Ariz.	12,500,000	250,000	50	.....	.....	.....	.....	2,637,500	Aug.	1892	.20
	Cook's Peak, s.	N. M.	2,000,000	200,000	10	.....	.....	.....	.....	119,532	Nov.	1892	.05
	Cop. Queen Con., C.	Ariz.	2,000,000	200,000	10	.....	.....	.....	.....	1,860,000	May.	1895	.25
	Copia	Nev.	10,000,000	100,000	100	.....	.....	.....	.....	68,000	Feb.	1895	.01
	Cortes, s.	Nev.	1,500,000	300,000	5	*	.....	.....	.....	735,000	Feb.	1893	.15
	Crescent, s. L. G.	Utah.	15,000,000	600,000	25	60,000	Oct	92	.10	238,000	Oct.	1888	.03
	Crown Point, G. s.	Nev.	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan.	1875	.00
	Daly, s. L.	Utah.	3,000,000	150,000	20	*	.....	.....	.....	2,850,000	May.	1893	.25
	†Deadwood-Terra, G.	Dak.	5,000,000	200,000	25	*	.....	.....	.....	1,140,000	Sept.	1892	.05
	DeLamar, G. s.	Idaho	2,000,000	400,000	5	.....	.....	.....	.....	1,516,000	Apr.	1895	.35
	Derbec B. Grav., G.	Cal.	10,000,000	100,000	100	100,000	Sept.	1892	.10	260,000	Mar.	1891	.05
	Dexter, G. s	Nev.	1,000,000	100,000	10	.....	.....	.....	.....	245,000	July	1893	.25
	Elkhorn, s.	Mont.	1,000,000	200,000	5	.....	.....	.....	.....	1,324,689	May	1895	.12½
	Elkton	Colo.	500,000	500,000	1	.....	.....	.....	.....	60,000	Dec.	1894	.01
	Enterprise, s.	Colo.	2,500,000	500,000	5	*	.....	.....	.....	850,000	June.	1893	.25
	EurekaCon., s. L., G.	Nev.	1,000,000	50,000	20	550,000	June	1889	.50	5,112,500	Jan.	1892	.25
	Eureka Hill, G. & L.	Colo.	500,000	50,000	10	.....	.....	.....	.....	1,500,000	Jan.	1891	.01
	Evening Star, s. L.	Dak.	10,000,000	100,000	100	200,000	Nov.	1878	1.00	1,437,500	Dec.	1889	.25
	Father de Smet, G.	Mich.	1,000,000	40,000	25	350,000	June	1867	2.50	1,125,000	Dec.	1885	.20
	Franklin, C.	Mont.	1,000,000	100,000	10	.....	.....	.....	.....	1,240,000	Jan.	1894	2.00
	Glengarry	Colo.	750,000	750,000	1	.....	.....	.....	.....	10,000	June.	1891	10
	Gold & Globe, G.	Nev.	10,800,000	108,000	100	4,688,400	Oct	1893	.10	9,375	Mar.	1895	.00¼
	Gould & Curry, s. G.	Nev.	10,000,000	100,000	100	785,000	Jan.	1890	.30	3,826,800	Oct.	1870	10.00
	Grand Prize, s.	Nev.	10,000,000	100,000	100	.....	.....	.....	.....	495,000	Mar.	1884	.25
	Granite Mountain, s.	Mont.	10,000,000	400,000	25	.....	.....	.....	.....	12,120,000	July.	1892	.30
	Great Western, L. Q.	Cal.	5,000,000	50,000	100	50,526	.....	1889	.15	388,866	Nov.	1893	.25
	Hale & Norcross, G. s.	Nev.	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug.	1888	.50
	Hecla Con., s. G. L. C.	Mont.	1,500,000	300,000	5	.....	.....	.....	.....	2,070,000	May.	1895	.50
	Hel'a Mg. & Red, s. L. G.	Mont.	5,315,000	663,000	5	.....	.....	.....	.....	197,970	July.	1886	.06
	Helena & Frisco, s. L.	Idaho	2,500,000	500,000	5	.....	.....	.....	.....	280,000	Feb.	892	.02
	Helena & Victor	Mont.	1,000,000	200,000	5	.....	.....	.....	.....	80,000	May	1892	.05
	Holmes, s.	Nev.	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
	Homestake, G.	Dak.	12,500,000	125,000	100	200,000	July.	1878	1.00	5,493,753	May.	1895	.25
	Hope, s.	Mont.	1,000,000	100,000	10	*	.....	.....	.....	552,250	Jan	1895	.10
	Horn-Silver, s. L.	Utah.	10,000,000	400,000	25	*	.....	.....	.....	5,137,500	Apr.	1895	.12½
	Idaho, G.	Cal.	$10,000	3,100	100	*	.....	.....	.....	5,489,000	Sept.	1893	2.50
	Illinois, s.	N. M.	100,000	100,000	1	*	.....	.....	.....	45,000	Apr.	1889	.20
	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*	.....	.....	.....	355,000	May	1895	.02
	Iron-Silver, s. L.	Colo.	10,000,000	500,000	20	*	.....	.....	.....	2,500,000	Apr.	1889	.20
	Jackson, G. s.	Nev.	5,000,000	50,000	100	247,500	Mar.	1893	.20	8,000	Feb.	1895	.04
	Kearsarge, C.	Mich.	2,000,000	40,000	25	190,000	Oct.	1887	1.00	80,000	Jan.	1890	2.00
	Kennedy	Cal.	10,000,000	100,000	100	.....	.....	.....	.....	1,250,000	May.	1895	.48
	Leadville Con., s. L.	Mont.	4,000,000	40,000	100	*	.....	.....	.....	16,000	Feb.	1892	.03
	Lexington, G. s.	Colo.	4,000,000	400,000	10	*	.....	.....	.....	652,200	July.	1893	.90
	Little Chief, s. L.	Colo.	10,000,000	200,000	50	*	.....	.....	.....	820,000	Dec.	1890	.05
	Maid of Erin	Colo.	3,000,000	600,000	5	.....	.....	.....	.....	708,900	Apr.	1893	.25
	Mammoth, s. L. G.	Utah	10,000,000	400,000	250	110,000	.....	1882	.25	1,040,000	Dec.	1891	.10
	Maxfield	Utah.	3,000,000	300,000	10	.....	.....	.....	.....	117,000	Apr.	1892	.03
	Mayflower, D. gravel	Cal.	1,200,000	60,000	20	*	.....	.....	.....	224,000	May.	1895	.10
	Minas Prietas, G. s.	Mex.	1,000,000	100,000	10	*	.....	.....	.....	350,000	Dec.	1890	.50
	Minnesota, C.	Mich.	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	.....
	Minnesota Iron, I.	Minn.	16,500,000	165,000	100	.....	.....	.....	.....	2,745,000	Apr.	1893	1.50
	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	19,500	Jan.	1891	.01	4,080,000	Jan.	1895	.05
	Monitor, G.	S. Dak	2,500,000	250,000	10	.....	.....	.....	.....	45,000	Oct.	1890	.03
	Mono, G.	Cal.	5,000,000	50,000	100	797,500	Feb.	1893	.25	12,500	Mar	1886	.25
	Montana, Lt., G. s.	Mont.	3,300,000	660,000	5	*	.....	.....	.....	2,701,575	Jan.	1895	12½
	Moose	Colo.	600,000	600,000	1	.....	.....	.....	.....	72,000	Nov.	1894	.02
	Morning Star, s. L.	Colo.	1,000,000	100,000	10	.....	.....	.....	.....	1,025,000	Dec	1891	.1
	Morning Star Drift, G	Cal.	240,000	2,400	100	.....	.....	.....	.....	376,700	May.	1895	7.00
	Moulton, s. G.	Mont.	2,000,000	400,000	5	*	.....	.....	.....	430,000	Feb.	1894	.05
	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	137,500	June	1880	2.00	225,000	Nov	1893	.30
	Mt. Rosa, G	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....	10,000	Jan.	1895	.10
	Napa, Q.	Cal.	700,000	100,000	7	.....	.....	.....	.....	70,000	May.	1895	.20
	Navajo, G. s.	Nev.	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	Apr.	1889	.10
	New Guston, s.	Colo.	550,000	110,000	5	.....	.....	.....	.....	1,877,500	Apr.	1892	.75
	North Banner Con.	Cal.	1,000,000	100,000	10	.....	.....	.....	.....	20,000	July.	1891	.05
	North Commonw'th	Nev.	10,000,000	100,000	10	90,000	Jan.	1893	.10	25,000	June	1891	.25
	N. Hoover Hill, G. s.	N. C.	300,000	120,000	2½	*	.....	.....	.....	30,000	Dec.	1885	.06⅔
	North Belle Isle, s.	Nev.	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May	1888	.50
	North Star, G.	Cal.	1,000,000	100,000	10	20,000	.....	1885	.02	450,000	June	1893	.50
	Nugget, G.		1,000,000	1,000,000	1	*	.....	.....	.....	10,000	Jan.	1895	.00¼
	Omaha Cons., G.	Cal.	2,400,000	24,000	100	.....	.....	.....	.....	97,200	July.	1894	.15
	Ontario, s. L.	Utah	15,000,000	150,000	100	.....	.....	.....	.....	13,175,000	Oct.	1892	.50
	Ophir, G. s.	Nev.	10,000,000	100,000	100	4,391,040	July	1893	.25	1,595,800	Jan	1880	1.00
	Osceola, C.	Mich.	1,250,000	50,000	25	480,000	April	1876	1.60	1,897,500	Jan.	1895	1.00
	Pacific Coast, B.	Cal.	2,000,000	20,000	100	.....	.....	.....	.....	422,500	July.	1893	1.00
	Parrot, C.	Mont.	2,300,000	230,000	10	.....	.....	.....	.....	1,569,000	June	1893	.10
	Pet'o	Utah.	10,000,000	10,025	100	.....	.....	.....	.....	17,500	July.	1891	.75
	Pharmacist, G.	Cal.	1,200,000	1,200,000	1	.....	.....	.....	.....	80,000	June.	1893	.01
	Plumas Eureka, G.	Colo.	1 406,250	140,600	50	.....	.....	.....	.....	2,696,295	Oct.	1892	.18
	Plymouth Con., G.	Cal.	5,000,000	100,000	50	*	.....	.....	.....	2,280,000	Feb.	1892	.45
	Poorman; G. s.	Idaho	375,000	300,000	125	*	.....	.....	.....	68,260	Sept.	1892	.15
	Portland, G.	Colo.	3,000,000	3,000,000	1	*	.....	.....	.....	161,000	May.	1895	.01
	Quicksilver, pref., Q.	Cal.	4,300,000	43,000	100	.....	.....	.....	.....	1,825,911	June	1891	1.25
	" com., Q.	Cal.	5,700,000	57,000	100	.....	.....	.....	.....	643,867	July.	1892	.40
	Quincy, C.	Mich.	1,250,000	50,000	25	200,000	Dec.	1862	.....	7,491,000	May.	1895	4.00
	Red Cloud	Idaho	1,000,000	200,000	5	.....	.....	.....	.....	153,000	Dec.	1892	.10
	Retriever, L.	S. Dak	1,250,000	250,000	5	.....	.....	.....	.....	20,000	Aug.	1891	.03
	Rialto, G.	Colo.	300,000	300,000	1	*	.....	.....	.....	50,250	Apr.	1892	.01¼
	Richmond, s. L.	Nev.	1,350,000	54,000	25	*	.....	.....	.....	4,386,780	Sept.	1893	.25
	Rico-Aspen	Colo.	5,000,000	1,000,000	5	.....	.....	.....	.....	325,000	Nov.	1894	.02½
	Ridge, C.	Mich.	1,250,000	50,000	25	219,939	Mar.	1886	50	99,785	Feb.	1890	.50
	Robinson Con., s. L.	Colo.	10,000,000	200,000	50	*	.....	.....	.....	585,000	Mar	1896	.05
	Savage, s.	Nev.	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1859	3.00
	Sierra Buttes, G.	Cal.	2,225,000	122,500	10	.....	.....	.....	.....	1,559,933	Oct.	1893	.12½
	Sierra Nevada, s. G.	Nev.	10,000,000	100,000	100	6,521,910	Aug.	1893	.20	102,000	Jan.	1871	1.00
	Silver Cord, s. L. G.	Colo.	5,000,000	500,000	10	.....	.....	.....	.....	270,000	Jan.	1889	.10
	Silver King, s.	Utah.	10,000,000	100,000	100	97,479	Aug.	1892	.25	988,500	May.	1895	.25
	Silver Mg. of L. V., s. L.	N. M.	500,000	500,000	1	.....	.....	.....	.....	300,000	Dec.	1891	4.05
	Small Hopes Con., s.	Colo.	5,000,000	250,000	20	*	.....	.....	.....	3,225,000	Oct.	1895	.10
	Standard, G. s.	Cal.	10,000,000	100,000	100	100,000	June	1890	.50	3,771,159	May.	1895	.10
	Swansea, g. s.	Colo.	600,000	60,000	10	.....	.....	.....	.....	39,000	Sept.	1892	.10
	Tamarack, C.	Mich.	1,250,000	50,000	25	520,000	April	1885	3.00	4,070,000	Dec.	1894	4.00
	Trinity Riv. Hydr., G	Colo.	500,000	500,000	1	*	.....	.....	.....	37,500	Apr.	1894	.00¾
	Union	Colo.	1,250,000	1,250,000	1	.....	.....	.....	.....	27,740	May.	1895	.01
	United Verde, C.	Ariz.	3,000,000	300,000	10	*	.....	.....	.....	562,500	Dec.	1893	.25
	Victor, G.	Colo.	1,000,000	200,000	5	.....	.....	.....	.....	325,000	May.	1895	05
	Ward Con., s.	Colo.	2,000,000	200,000	10	.....	.....	.....	.....	20,000	Dec.	18 9	.05
	W. Y. O. D.	Cal.	60,000	30,000	2	.....	.....	.....	.....	96,000	Jan.	1895	.10
	Yankee Girl, †	Colo.	1,300,000	260,000	5	22,500	May.	1891	.10	520,000	July.	1891	.25
	Yellow Jacket, G.	Nev.	12,000,000	120,000	100	.....	July.	1893	.25	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and am't of last.			
1	Ajax, G. s. L.	Utah.	$3,000,000	300,000	$10	$15,000	Mar.	1895	$21	
2	Alliance, s. G.	Utah.	100,000	100,000	1	120,000	Feb..	1891	.10	
3	Alloues, C.	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.10	
4	Alpha Con., G. s.	Nev..	3,000,000	30,000	100	209,000	Sept.	1892	.10	
5	Alta, s.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	05	
6	American Flag, s.	Colo..	1,250,000	125,000	1	300,000	June	1887	.....	
7	Anchor, s. L. G.	Utah.	3,000,000	150,000	5	560,000	July.	1893	.15	
8	Barcelona, G.	Nev..	5,000,000	200,000	5	*	.....	.....	.....	
9	Belmont, G.	Cal.	500,000	500,000	100	*	.....	.....	.....	
10	Belmont, s.	Nev..	5,000,000	50,000	100	735,000	April	1886	.10	
11	Best & Belcher, s. G.	Nev.	10,080,000	100,800	100	2,405,275	Aug..	1892	.25	
12	Black Oak, G.	Cal..	3,000,000	300,000	100	*	.....	.....	.....	
13	Brownlow, G.	Colo..	250,000	250,000	5	.....	.....	.....	.....	
14	Brunswick, G.	Cal..	2,000,000	400,000	2	.....	.....	.....	.....	
15	Bullion, s. G.	Nev.	10,000,000	100,000	100	2,890,000	Aug.	1892	.25	
16	Butte & Boston, C. s.	Mont.	5,000,000	200,000	10	*	.....	.....	.....	
17	Butte Queen, G.	Cal...	1,000,000	100,000	1	6,000	Jan..	1892	.....	
18	Calaveras, G.	Cal..	500,000	500,000	5	.....	.....	.....	.....	
19	Calaveras Con., G.	Cal..	800,000	160,000	10	*	.....	.....	.....	
20	California, G.	Cal..	1,000,000	100,000	5	9,000	Mar..	1892	.....	
21	California Con. L. Q.	Cal..	2,250,000	450,000	10	.....	.....	.....	.....	
22	Challenge Con., G. s.	Nev..	5,000,000	50,000	100	.....	.....	.....	.....	
23	Chollar, s. G.	Nev..	11,200,000	112,000	2	2 212 300	May..	1895	.50	
24	Colchis, s. G.	N. M.	500,000	150,000	5	.....	.....	.....	.....	
25	Colorado, s.	Colo.	1,625,000	325,000	1	.....	.....	.....	.....	
26	Comstock, s.	Utah.	1,250,000	250,000	100	.....	.....	.....	.....	
27	Comstock Tun.	Nev..	10,000,000	100,000	100	35,000	Mar.	1887	.10	
28	Con. Imperial, G. s.	Nev..	5,000,000	50,000	50	2,062,500	Jan..	1892	.25	
29	Con. New York, s. G.	Nev..	5,000,000	100,000	100	110,000	Mar..	1892	.10	
30	Con. Pacific, G.	Cal..	6,000,000	60,000	10	198,000	June	1890	.10	
31	Crescent, s. L.	Colo..	3,000,000	300,000	100	*	.....	.....	.....	
32	Crocker, s.	Ariz..	10,000,000	100,000	1	165,000	Aug.	1892	.05	
33	Crowell, G.	N. C..	500,000	500,000	1	.....	.....	.....	.....	
34	Dahlonega, G.	Ga....	250,000	250,000	10	*	.....	.....	.....	
35	Decatur, s	Colo..	1,500,000	300,000	.....	.....	.....	.....	.....	
36	Denver City s.	Colo..	5,000,000	500,000	11	*	.....	.....	.....	
37	Denver Gold, G.	Colo..	300,000	60,000	5	.....	.....	.....	.....	
38	Dickens-Custer, s.	Idaho	2,160,000	420,000	5	.....	.....	.....	.....	
39	Durango, G.	Colo..	500,000	500,000	1	*	.....	.....	.....	
40	El Dorado, G.	Cal..	1,000,000	250,000	4	*	.....	.....	.....	
41	Emma, s	Utah.	625,000	500,000	125	.....	.....	.....	.....	
42	Emmons, s. L.	Colo..	2,000,000	2 000,000	1	.....	.....	.....	.....	
43	Empire, s.	Utah.	10,000,000	100,000	100	.....	.....	.....	.....	
44	Eureka Tunnel, s. L.	Nev..	10,000,000	100,000	100	*	.....	.....	.....	
45	Exchequer, s. G.	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.25	
46	Found Treasure, G. s.	Nev..	10,000,000	100,000	100	130,500	Jan..	1892	.50	
47	Gogebic I. Syn., I.	Wis.	5,000,000	200,000	25	.....	.....	.....	.....	
48	Gold Cup, s.	Colo..	500,000	500,000	1	*	.....	.....	.....	
49	Golden Era, s.	Mont.	1,000,000	200,000	10	*	.....	.....	.....	
50	Gold Flat, G.	Cal	1,000,000	100,000	10	5,000	Mar..	1892	.05	
51	Gold Rock, G.	Cal..	1,000,000	500,000	2	.....	.....	.....	.....	
52	Golden FeatherCh., G	Cal..	900,000	180,000	5	.....	.....	.....	.....	
53	Goodyear G. & L.	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01	
54	Grand Duke, s.	Colo..	800,000	80,000	10	.....	.....	.....	.....	
55	Gregory Con., G.	Mont.	3,000,000	300,000	10	.....	.....	.....	.....	
56	Harlem M. & M. Co., G.	Cal..	1,000,000	200,000	5	.....	.....	.....	.....	
57	Hartery Con., G.	Cal..	1,000,000	100,000	10	22,000	Oct..	1890	.05	
58	Hartshorn, g. s.	S. Dak	1,250,000	250,000	5	8 750	Sept.	1891	.00¼	
59	Head Cent. & Tr., s. G	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.03	
60	Hector, G.	Cal..	1,500,000	300,000	5	45,000	Jan..	1889	.15	
61	Himalaya, g. s. L.	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½	
62	Holywood	Cal..	300,000	100,000	3	.....	.....	.....	.....	
63	Huron, C.	Mich..	1,000,000	40,000	25	280,000	May.	1887	3.00	
64	Idaho, G. s.	Idaho	1,250,000	250,000	5	.....	.....	.....	.....	
65	Ingalls, g.	Colo..	100,000	20,000	5	.....	.....	.....	.....	
66	Ironton, L.	Wis.	1,000,000	40,000	25	.....	.....	.....	.....	
67	Iroquois, C.	Mich.	1,250,000	50,000	25	.....	.....	.....	.....	
68	Kentuck Con.	Nev..	10,500,000	105,000	00	37,750	July	1892	.10	
69	Julia Con., G. s.	Nev..	11,000,000	110,000	100	1,463,000	Jan..	1889	.10	
70	Justice, g. s. C.	Colo.	500,000	500,000	1	*	.....	.....	.....	
71	Lacrosse, G.	Colo..	1,000,000	100,000	10	*	.....	.....	.....	
72	Little Josephine, s.	Colo..	250,000	50,000	5	.....	.....	.....	.....	
73	Little Pittsburg, G. s.	Utah.	4,000,000	400,000	10	4,000	Mar..	1892	.....	
74	Lone Star Cons., G.	Cal..	500,000	500,000	1	10,000	April	1892	.00½	
75	Madeleine, G. s. L.	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00½	
76	Mammoth Gold, G.	Ariz..	2,500,000	500,000	5	*	.....	.....	.....	
77	Mayflower Gravel, G.	Cal..	1,000,000	100,000	10	.....	.....	.....	.....	
78	Mexican, G. s.	Nev...	10,000,000	100,000	100	2,917,560	Oct..	1892	.50	
79	Michigan, G s	Mich..	2,500,000	100,000	25	40,000	Mar..	1892	.....	
80	Mike & Starr, s. C.	Colo..	1,000,000	200,000	5	*	.....	.....	.....	
81	Milwaukee, s.	Mont.	500,000	500,000	1	*	.....	.....	.....	
82	Modoc Dist., I. s. G.	Idaho	1,000,000	200,000	5	5,000	Jan.	1892	.00½	
83	Monitor, G.	Colo..	100,000	100,000	1	12,500	May.	1891	.01	
84	Montreal,